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Therapeutic Gazette.

WHOLE SERIES, VOL. XXVI. DETROIT, MICH., MAY 15, 1902. THIRD SERIES, VOL. XVIII, NO. 5

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Original Communications.

ACETOZONE (BENZYL-ACETYL HYPEROXIDE) IN THE TREATMENT OF TYPHOID FEVER.

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Since the establishment of the cause of typhoid fever in the bacillus of Eberth, and the recognition that the symptoms are due to the absorption of the toxic products of that organism, the treatment of the disease has gradually passed from the domain of empiricism to a more fixed and scientific method. This method has for its primary object the elimination of the toxins from the system, although there are other features which all followers of Brand recognize as of peculiar value. The want of knowledge as to the seat of the primary colony of the germ, and the indefinite results attending all efforts to influence this colony in the intestinal canal with efficient germicides, without injury to the patient, has tended to popularize the Brand treatment, or its modifications, until to-day there is no well defined effort encouraged to either destroy or attenuate the primary colony, nor the secondary expressions of the infection. Indeed, an eminent authority has but recently declared that antisep-

tics (germicides) are not called for in the treatment of the intestinal complications in this disease. Except for the very general acceptance of the Brand treatment, therefore, almost every practitioner follows some plan of treatment devised by himself, the most of these plans being purely expectant. Why has this been so? Is it not because we have had but an imperfect idea of what we desired to accomplish? Because we have been content to meet symptoms, to be directed by events rather than to direct them? What can be done in this direction?

I will briefly state that the normal cycle of an uncomplicated case of typhoid infection is fourteen days, a fact indicated by the numerous instances of cases of this duration recorded during epidemics, and the results of treatment directed to this end in my own practice, and by the results thus far attending the effort toward the immunization of those exposed to wide-spread epidemic influences. In *American Medicine* of the issue of February 8, 1902, I have presented for consideration the reasons upon which I based the conclusion that the primary germ colony in this disease cannot be considered as taking place in the intestinal canal, but that the weight of evidence shows it to be normally an invasion of the respiratory tract; that the bacillus of Eberth invades the general circulation from this primary colony (typhoid sepsis) in practically all diagnosed cases; that from the blood-current it may give rise to all of the well known terminal expressions, such as the infection of the intestinal canal, the gall-bladder, the urinary bladder, the serous membranes, bone-marrow, etc.

From the results of treatment in the twenty-seven cases detailed in the above mentioned article, the duration of the disease was reduced in a large number of them to the fourteen-day cycle, the time being reckoned from the day of definite symptoms. In all of these cases the usual complications of the bowel were conspicuous by their absence, and if present in those admitted rather late in the disease they were quickly overcome. There were no deaths, and but few terminal expressions of the infection. The treatment pursued in them all was as follows: Upon admission to hospital the bowel was thoroughly moved by grain doses of calomel combined with one grain of aloin and two of guaiacol carbonate every four hours, until the canal was well flushed; also the patient was given from 1500 to 2000 cubic centimeters of the twenty - four - hour - old solution of acetozone (benzozone) daily; the diet was milk diluted with the acetozone* solution. In addition to the acetozone thus administered by mouth the effort was made to reach the colonial area in the lung by means of forced inspiration of the atomized solution, but owing to the paresis of these areas and the well-known difficulty of atomizing the deeper structures, it is not known that the applications were of great benefit. In some cases the acetozone was given in capsule, five grains in sugar of milk thrice daily. To meet high temperatures cold sponge baths were used, and at times the full tub.

The first influence of the hyperoxide is noted in the much increased secretion of the kidneys—due in part, no doubt, to the large amount of water ingested, although the same result is noted from the administration by capsule. The second influence is the very pronounced decrease of the odor of the typhoid stools, which soon become odorless, and at the same time the flora of the intestine quickly becomes diminished, plate cultures of given quantities of the dejecta showing comparatively few germs to the normal. In one case the dejecta were found to be ***absolutely sterile*** during the second week of the fever. The intestinal complications are most frequently the source of the gravest danger in typhoid fever, and are the cause of the major part of the mortality of the disease, and of many of the prolonged cases; therefore, if we have in this chemical an agent capable of at least partially sterilizing the intestinal canal, thus reducing the possibility of gaseous fermentation with bowel distention and its concomitants, hemorrhage and perforation, a great advance in treatment has been gained. But we accomplish at the same time the destruction of the secondary infection of the canal by the typhoid organism, thereby averting further toxemia by absorption from the

*Note.—Since this article was written by Dr. Wasdin the name of the antiseptic benzoyl-acetyl-peroxide has been changed from "benzozone" to "acetozone."—Publisher.

canal. Mixed infection is made materially less probable. The germicide is therefore to be directed against both the primary colony in the respiratory tract and the secondary expression in the alimentary canal, and I have used the solution by hypodermoclysis with benefit.

In the management of typhoid fever we must remember, however, that the natural cure of the disease results from that normal reaction of the body to the toxic stimulus of the products of the germ colony, which produces in the blood those anti-bodies which exercise an influence upon the organisms, either lytic or inhibitive, resulting in the cessation of all symptoms. If this reaction occurs normally the cycle of the disease is established, and as I have said, is practically fourteen days. If, however, the organism colonizes, from hemorrhage, in the canal, wherein it is to be assumed the anti-bodies do not so readily influence them, and absorption of toxins takes place, the fever is thereby prolonged. It is noteworthy that so many cases of the disease last twenty-one days, a fact explainable on the hypothesis that the primary intoxication of fourteen days is overlapped by the secondary toxic influence from the bowel, which must commence about the end of the first week, thus making the fastigium of the fever the time of the greatest intoxication in these complicated cases, which the best authorities place at or about the fourteenth day, the fever ending by lysis near the twenty-first. In some cases the reaction to the toxic stimuli takes place so poorly and slowly that, in spite of the practical sterilization of the canal and the prevention of its complications, the disease progresses beyond its normal cycle into a prolonged, atypical course, characterized by a most irregular temperature chart, and frequent losses of the attained immunity—relapses, most trying both to patient and attendant, and ending in death or slow convalescence. In these cases our efforts must be toward the supply of preformed anti-bodies, to the end that normal cure may be established, and my ideal treatment of the disease combines all of the measures herein mentioned, one of my cycle cases recently illustrating perfectly the reasonableness of the expectation to reduce the disease to the fourteen-day period of duration.

As to the innocuousness of the peroxide (acetozone), I can only say that I have never observed any deleterious symptom from its use as a germicide in all conditions, medical or surgical, requiring its exhibition. The necessity of care in the preparation of its solutions in order to insure its germicidal effect is dwelt upon in the literature supplied by the firm of Parke, Davis & Co., who have supplied me the chemical. The testimony of the chief nurses in the fever divisions of our hospital will appeal to us in support of the usefulness of the peroxide. They affirm that the labor of the care of like numbers of cases of typhoid fever has been diminished one-half since the introduction of acetozone.

We may therefore conclude: (1) That the peroxide is efficiently germicidal under conditions favoring its hydrolyzation; (2) that it is innocuous to man and animals, being readily secreted through the kidneys as hippuric acid; (3) that in the treatment of typhoid fever and other bacillary diseases it is directly applicable to destroy the primary colony, provided it can be brought into contact with it; (4) that its special application in typhoid fever enables us to obviate intestinal infection and absorptive toxemia therefrom, thus favoring the formation of protective anti-bodies, and limiting, in many cases, the disease to its normal cycle; (5) that in those cases of inefficient reaction in typhoid fever its use tends to make the patient much less uncomfortable, thereby offering better results from appropriate serum therapy.

THE USE OF A SOLUTION OF PERMANGANATE OF POTASSIUM IN THE TREATMENT OF PURULENT OPHTHALMIA.

By Howard F. Hansell, M.D.,
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Permanganate of potassium as a germicidal and antiseptic wash as a means of keeping the conjunctival sac free from collections of pus in purulent ophthalmia of infants or of adults is not new. It is, however, seldom recommended as a useful medicament by the text-books, and is, I believe, but little used in practice. My experience with the drug includes a series of cases extending over two years, and isolated cases oc-

curring in my practice before that time. My experience has been uniformly gratifying, and I believe that permanganate of potassium is to-day the most beneficial of the antiseptic solutions when used systematically and by skilful persons. In proof of this statement, I desire to record the details of the method of its application and the result attained in four cases of ophthalmia neonatorum.

1. *Method.*—The strength of the solution to be employed was a matter of experiment; commencing with a solution of 1:2000, I have used it in increasing strengths up to 1:600. The last named solution was the strongest that could be borne in the case of infants without marked evidences of pain and distress; 1:500 was immediately followed by indications of pain that led me to believe that its continued employment would result disastrously. In fresh or severe cases in which the discharge is thick, yellow, and abundant, and in which the gonococci are found, the solution of 1:600 is ordered. The eye is irrigated for five minutes by means of a rubber nozzle attached to a rubber douche bag, the solution being guided into all portions of the conjunctival sac, and allowed to discharge over the side of the face on to a rubber sheet and thence into a receptacle. The intervals between the irrigations vary according to the effect produced. During the first twenty-four hours they are repeated every twenty minutes. If the discharge at that time has lessened, the strength of the solution is reduced and the intervals are increased. This matter is left largely to the nurse's discretion and judgment. The irrigation should be continued with gradually weakened solutions up to 1:2000 as long as pus is found in the conjunctival sac. The single disadvantage of the permanganate of potassium solutions is the violet discoloration of the conjunctiva, of the skin of the face, and of the hands of the attendant. This, however, from the skin may be removed by the application of oxalic acid, and is in no sense permanent. An advantage which to me is new is the outlining of corneal ulcerations, the area of the loss of epithelium being distinctly shown by the stain of the permanganate, exactly as by the staining of fluorescin.

2. *The Results.*—The quantity of pus is decidedly reduced in the first twenty-four hours, and this is accomplished purely by the action of the permanganate, since in the cases tested there was no other medicament used, excepting constant application of iced cloths. In two or three days the discharge has diminished to such an extent that the permanganate solution may be entirely dispensed with, or substituted by distilled water or boric acid solution. The destruction of the gonococci is undoubted. Where the findings have been numerous before its application, they have become few in number or have entirely disappeared after twenty-four hours, or at most thirty-six hours of this treatment, and its beneficial action on severe cases in which corneal ulcers developed in the first twenty-four hours is equally marked. In one case admitted to the eye ward from the maternity ward of the Philadelphia Hospital, the disease had advanced in the course of a few hours to such an extent that the lower third of the cornea was ulcerated, and I gave a bad prognosis for this eye. By the next day, however, the swelling had been so greatly reduced and the discharge of pus so lessened that the child was able to open its eyes, and while the ulcer had not diminished in extent, it had not increased in depth. The final result was favorable, since at the last examination the inflammation had entirely disappeared and the ulcer healed, leaving only a superficial opacity. In the three other babies who were treated at the same time, and whose eyes presented the characteristic signs of ophthalmia neonatorum, and in which the microscopic examination revealed gonococci, the result of the treatment, while not so rapid, was equally successful. All of the eyes recovered, some with clear cornea, others with superficial leucoma marking the site of previous ulceration.

In the purulent ophthalmia of adults, where in the natural history of the disease the inflammation is violent and the destruction of the cornea is rapid, the permanganate solution has rendered in my hands, although in a fewer number of cases, equally satisfactory but less speedy results. The discharge has been lessened, the inflammation of the lids reduced, the photophobia relieved, and recovery ensued.

It would be interesting to compare the action of the permanganate solution of various strengths with that of the other solutions commonly employed, such as saturated boric acid, bichloride, formalin, etc., but my experience is not sufficiently great or the

examination of the cases sufficiently accurate to warrant reliable comparison. I have used them all and repeatedly, and believe them to be inferior as germicides or as curative agents to the permanganate.

SCIATIC NEURITIS AND ITS TREATMENT.

By L. Harrison Mettler, A.M., M.D.,
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The following cases, selected from my clinic at the West Side Hospital, are reported as average cases of sciatica, and as texts whereon to base my remarks:

H. K., aged sixty-one, German, says he strained his back in some way about six weeks ago. A short time after he experienced a pain of a dull, heavy, aching character in the thigh and leg of the right side. The peripheral parts soon became numb and slightly anesthetic. At present his attitude and gait are typical of sciatica. The nerve is sensitive to pressure, especially when vigorously rolled from side to side beneath the fingers. This sensitiveness is more pronounced at certain points than at others, more particularly where the nerve approaches a bony prominence. Extreme flexion of the leg upon the body provokes unbearable pain along the course of the nerve, and considerable paresthesia in the foot. In the act of sitting down the patient moves cautiously and awkwardly. As yet there is no marked atrophy of the muscular tissues, and the tenderness forbade a satisfactory electrical examination. In youth the patient was unusually exposed to cold and dampness; and now every once in a while he has slight rheumatic attacks. He suffered from empyema seven years ago. Rest, hot applications externally, and the vigorous administration of salicylate of soda gave prompt relief.

J. M., aged fifty-nine, colored, began suddenly to have pain in the right leg two weeks ago. When he presented himself at the clinic he was a pitiable sight. He hobbled along, grasping his leg with both hands, wincing and moaning with each step he took. He refused to sit down, and said he positively could not. Allowing for the well known supersensitiveness of one of his race, the poor fellow was undoubtedly suffering agony. To give him immediate relief, morphine was administered hypodermically. He had had several attacks of rheumatism since the War of the Rebellion, but had never had an attack of sciatica before. He denied specific disease and the excessive use of alcohol. Along with all the other typical signs of acute sciatic neuritis, the paresthesia was unusually marked in this case. The feet were numb and felt "full of pins and needles." The same line of treatment as in the other case produced a prompt and satisfactory result.

Other cases, more chronic in character, which I might report, would have revealed a similar clinical picture and history. Fortunately for medical science, sciatica is so common a disease that one writing about it can feel tolerably certain that his readers have all seen typical examples.

As stated by the authorities, there are two forms of sciatica, the *primary* and the *secondary*. By secondary sciatica is meant pain in the sciatic nerve provoked by some extraneural cause, as for instance a tumor pressing upon the nerve. It would be well if we could drop the term secondary sciatica entirely as the name of a disease of the sciatic nerve; for it represents no more an affection of that nerve than would the pain caused by a corn on the foot represent an affection of the nerve involved. The very symptom-complex of so-called secondary sciatica is different from that of the true or primary form. In the former the pain is a referred pain, usually peripheral in location, and is not elicited by direct pressure or by the usual maneuvers which elicit the pain in the latter.

Strictly speaking, there is only one form of sciatica, disease of the nerve itself. This disease, it is sometimes said, may be functional or organic, and hence true sciatica has been divided into *idiopathic neuralgia* of the nerve, and *neuritis*. Idiopathic functional sciatic neuralgia is the term employed to cover all the so-called secondary neuralgias and all painful states of the sciatic nerve unaccompanied by any known or observable changes in the nerve itself or its central connections. Such names as gastralgia, cardialgia, cephalalgia, myalgia, neuralgia, and a host of others that have become engrafted upon the science of medicine, are the contributions of practical medicine; and

while they may be very comforting to employ in certain obscure cases, their careless and indiscriminate application to well recognized symptom-groups and pathological conditions is an unwarrantable looseness in the use of language which awakens a suspicion of ignorance or of indolence. Idiopathic neuralgia and simple neuritis are constantly being confounded. Though many cases of so-called neuralgia are clearly instances of neuritis, it is much more convenient in the hurry of general practice to call cases of painful nerves by the undeniable but meaningless name of neuralgia than it is to study the electrical reactions and other symptoms characteristic of neuritis. Dana* found, after a close study of the subject, that true idiopathic neuralgia is a rare disease, constituting not more than two or three per cent of all the different forms of nervous disorders. Symptomatic and reflex neuralgias are of course far more common. These statistics confirm those of Classin, of Kiel, who collected 434 cases. And yet how many cases in general practice we hear of being diagnosed and treated as idiopathic neuralgia!

On account of the generally favorable termination of sciatica, the opportunity for the direct examination of the diseased nerve rarely presents itself. In those cases in which it has been examined, however, the findings have almost invariably been those of a neuritis or perineuritis: redness with swelling of the nerve-sheath, small hemorrhages in recent cases, spindle-shaped intumescence, dilated arteries, serous transudations, migration of the leucocytes, proliferation of the connective tissue, adhesions and secondary damage to the nerve-fibers. In so great a majority of the cases have these signs of inflammation been seen that one is easily justified in suspecting that all cases of primary sciatica are cases of sciatic neuritis. This suspicion is moreover confirmed by a careful consideration of the etiology, symptoms, and therapeutics of sciatica. Among the considerable number of cases that have come under my observation, I do not recall one in which I was not satisfied that the nerve itself was more or less inflamed.

The etiology of sciatica, as given in the text-books, is remarkably like that of simple neuritis. In one of the recent works upon nervous diseases, sciatica is said to be the result of traumatism, exposure, gout, rheumatism, syphilis, or malaria. Lawson declares that nine-tenths of the cases of sciatica are due to exposure to cold, while Erb insists upon the preëminence of this above all other causes. Many authors, as, for instance, Gowers, Tyson, Osler, Anstie, and Weir Mitchell, speak of syphilis as an infrequent cause of sciatica. They doubtless refer to sciatic neuritis; for just like intracranial syphilis, which so frequently affects the nerves of the ocular muscles without causing any inflammation in these nerves, so syphilis may cause a secondary sciatica or pain in the nerve by a neoplastic pressure, without giving rise to a primary sciatic neuritis except in rare cases. Infectious diseases, such as typhoid fever, variola, diphtheria, tuberculosis, intoxicants such as alcohol and nicotine, diabetes, and other toxemic conditions, may all predispose to an attack of sciatica, as well as to a general neuritis; but exposure to cold and damp, and direct injury of the nerve, are the chief factors that start the attack. It is a noteworthy fact, when considered in this connection, that heredity and predisposition are of less importance in the etiology of sciatica than they are in the neuralgia of other nerves.

In persons suffering from varicose veins, Quenu found the veins in the interior of the sciatic nerves greatly dilated. Of sixty-seven individuals with varicose veins eleven were the victims of sciatica. Unless there are other signs of inflammation present, it were better to regard these cases as examples of secondary sciatica—that is, sciatic pain caused by pressure. At least that is the explanation I offered in regard to a private case of my own. The patient was a German woman, fifty-two years of age, with varicose veins of the right leg, who suffered at rare intervals with slight attacks of pain along the course of the corresponding sciatic nerve. An elastic stocking and the internal administration of hamamelis afforded her prompt and marked relief.

If one compares the symptoms of sciatica as usually presented with those of simple neuritis, he will be still more forcibly impressed with the probable inflammatory origin of the former. It is oftener the rule than the exception for the inflammatory process in neuritis to be more intense at particular points in the course of the nerve. Indeed, a large number of these cases might

**New York Medical Journal*, 1887.

well be called *focal* neuritis, on account of the higher degree of the inflammation at these points or foci. The pain is usually sharper there on account of the greater damage and severer pressure upon the nervi nervorum. And yet what are these tender points of neuritis but the classical *puncta dolorosa* of neuralgia! In sciatica these puncta are described as being usually situated in the neighborhood of bony prominences. Valleix, who was the first to draw attention to them, said they would be found to correspond with the posterior superior spine of the ilium, the spine of the ischium where the nerve makes its escape from the pelvic cavity, the great trochanter of the femur behind which the nerve runs near the border of the gluteus maximus, the head of the fibula, the internal malleolus, and the dorsum of the foot.

In sciatic neuritis it is easy enough to explain the tenderness of the nerve-trunk by means of the inflammatory irritation and pressure upon the nervi nervorum; but in so-called idiopathic neuralgia, in which there is supposed to be no perceptible lesion of the nerve-trunk, it is difficult to comprehend how such exquisite local pain is to be accounted for. Idiopathic neuralgic pain would presumably be not localized in the nerve-trunk, but rather at the peripheral distribution of the nerve and its branches. At all events it would not be so keen in the nerve-trunk as it is in neuritis. Every one knows, however, that the local pain in sciatica is usually so severe that the patient dreads to be touched, and finds sitting down often a most distressing act.

Pathology has not yet discovered any change in the trunk of a nerve attacked with so-called idiopathic neuralgia. The change, whatever it may be, is either at the peripheral or central end of the nerve. There are no sensory cells in the course of the nerve itself or its constituent fibers whereby painful impressions are received and transmitted to the brain. And yet neuralgia is one of the most painful of all affections, and the pain, as in sciatica, is even more intolerable in the nerve-trunk than it is at the periphery. Those who deny the inflammatory character of these painful sciaticas have no easy task before them to explain the immediate cause of the pain. In opposition to all the teachings of physiology, they must show how a relatively inert nerve-fiber, capable merely of transmitting different impulses, can, when unaffected by any perceptible pressure or irritation within or outside of its own substance, give rise to the most excruciating agony. To say that this pain is functional in character, and therefore does not need any perceptible change in the nerve structure to account for it, only enhances the difficulty, for functional pains are always referred to the extremity of the nerve and its branches and never directly to the nerve-trunk. And again, to say that the nervi nervorum found in the course of the nerve-trunk are the peripheral sources of this so-called idiopathic neuralgia as functional pain, needs a further explanation of how these nervi nervorum come to be the sources of this pain in the absence of any pressure or damage to them. Does it not seem singular that this mysterious, imperceptible agent of idiopathic neuralgia can thus arouse to the highest degree the function of a sensory nerve and yet not at the same time affect the motor strands? The motor nerves along the course of their trunks are like the sensory nerves; yet *motor spasm*, pure and simple, is not a symptom of idiopathic neuralgia.

In typical neuritis there are associated with the pain along the course of the nerve-trunk peculiar sensations, paresthesiæ, and various degrees of motor paresis in the parts supplied by the nerve and its branches. In fact, the combination of pain in the course of the nerve-trunk with various spontaneous irritative motor and sensory phenomena at its distal extremity, is almost pathognomonic of an inflammation of the nerve. The pressure and irritation of the nervi nervorum and recurrent fibers sufficiently explain the former, while interference with the power of conduction by the same pressure readily accounts for the latter. And yet some of the authorities still assert that in simple neuralgia of the sciatic nerve there occur various paresthesiæ, tonic and clonic spasms in the leg, and even at times a considerable degree of paralysis. In other words, when the nerve is apparently quite unchanged histologically, it is affected *functionally* in such a mysterious way as to give rise to a paralysis and symptoms of irritation at the same time. The argument itself is a *reductio ad absurdum*. The nerve, it is maintained, is so sensitive that the condition is deemed worthy of the dignity of a special name, neuralgia; while at the same time the nerve is so dead in function as to

fail in the proper conduction of received impressions. Usually, irritation is the cause of muscular spasm; here, however, irritation is made more frequently to accompany paralysis. There is a conflict here between physiology and pathology which those who insist upon the non-inflammatory character of idiopathic sciatica will do well to explain. The pain of sciatica is more or less of a localized pain, rarely diffuse, and is boring, tearing, and burning in character. It is often so localized that the patient can almost feel the entire nerve like a cord passing down the back of his leg. Like all inflammatory pains, it varies in intensity and is increased by movement and pressure. Sometimes the skin is red and slightly edematous, and the local temperature may be somewhat elevated. The earliest indications of involvement of the nerve-fibers are the peripheral paresthesia and hyperesthesia for the sensory, and fibrillary twitchings and tonic contractions of the muscles for the motor. The reflexes are somewhat increased at first, but diminished in old cases. The electric excitability is at first enhanced, and then more or less lost. In subacute and chronic cases there will be some reaction of degeneration. Trophic disturbances sometimes observed include muscular atrophy, herpes, excessive perspiration, and even joint affections. How are we to explain this formidable array of electrical and trophic phenomena except upon the ground of a neuritis?

In simple neuritis, posture is at times almost as pathognomonic as is pain upon movement. In so-called idiopathic neuralgia posture as a usual thing affords no more relief than does the movement cause increased pain. The faulty attitude of he body, so characteristic in sciatica, is an old and well recognized symptom. Sometimes the patient leans toward the painful side, sometimes away from it; but always in a direction to modify the severity of the pain. By the maneuver the nerve is probably lifted away from certain prominences in the pelvis against which it usually rests.

Neuralgia of other nerves generally occurs under very different conditions from those under which neuralgia of the sciatic usually occurs. The victims of such neuralgias often suffer from migraine, pain in some of the special nerves of the head and of the viscera, which pains are remarkably disposed to become periodic. Headaches and visceral pains are quite infrequent among patients suffering from primary, simple sciatica.

In the management of sciatica the methods that afford the highest degree of success are not only different from those employed in the treatment of other neuralgias, but they are more or less identical with those that prove to be most efficacious in the management of neuritis. Counter-irritation and the actual cautery even, the internal administration of vasomotor sedatives, the free use of cathartics, diuretics, and diaphoretics, are the chief measures depended upon in the subacute and acute stage. Analgesics, narcotics, and sensory depressants produce less permanent results in sciatica than they do in other forms of neuralgia, doubtless because they do not affect the organic changes underlying the trouble.

According to Pliny,* the victims of sciatica in his day had their pains assuaged by the soft tones of the flute. From this ancient musical method to the modern hypnotic it is not such a far leap. Pain may become a habit even after the organic cause of the pain has disappeared, a habit which often needs only moral and mental treatment for its relief. In such cases, and they are usually long-standing ones, electricity, baths, moderate exercise, and general hygienic treatment will do much.

Drugs are useful, though secondary in the treatment of sciatica. In the acute stage, general and absolute rest, even to the point of strapping the limb if necessary, is a *sine qua non*. To paralyze the sensibility and depress the excited circulation, opium and its alkaloids, aconite, belladonna, antipyrin, phenacetine, acetanilid, are all most useful. So many cases are associated with the rheumatic and gouty diatheses that I find myself making large use of the salicylates and colchicum, and with general good results. The deep injection of ether and chloroform, though useful sometimes, has not proved uniformly so in my hands. In old cases, nerve-stretching may be done surgically, or less radically by placing the patient on his back and flexing the legs on the body as far as possible. Sometimes this has broken up a long-standing sciatica, possibly doing it by breaking up small, old adhesions and restoring the circulation.

After the trouble has become chronic and all acute signs of inflammation have disap-

*Hist. Nat., Lib. xxviii.

peared, I resort to the steady use of strychnine, preferably by the subcutaneous method as recommended by Leyden, in doses of from 1-70 to 1-20 of a grain twice a day. Massage, baths, and the steady use of mild currents of electricity should be made every day.

If we thus study the causation, symptoms, and therapeutics of sciatica and compare them with the causation, symptoms, and therapeutics of simple neuritis, we cannot fail to be impressed with the similarity. When two diseases are similar in so many respects, and when nothing is known of the pathology of the one (idiopathic neuralgia) while the pathology of the other is so perfectly familiar (neuritis, perineuritis), is it not safe to conclude that with the exception of the rarest cases the pathology is the same in both? It is easier to prove a rational hypothesis than one which is based on nothing better than imagination. The careless and indiscriminate use of the term neuralgia —covering, as it does, so many different conditions of which pain only is the preëminent symptom—has hindered not a little that close scientific accuracy which is so desirable in nosology and so necessary to the progress of knowledge. For the present we may assert that all appearances at least warrant the conclusion that sciatica is a neuritis of the sciatic nerve, that so-called secondary sciatica is not any affection of the nerve at all in the strict sense, and that there is but one positively known form of sciatica, namely, sciatic neuritis.

100 State St.

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*THE PRACTICAL VALUE OF INTRATRACHEAL MEDICATION.**

By P. S. Donnellan, M.D.,
Laryngologist to St. Agnes Hospital, Philadelphia.

I desire to present to the section this evening some observations on the practical value of intratracheal medication in the treatment of diseases of the respiratory organs. My experience has been too limited to draw positive deductions, but I have been so impressed with its unquestioned utility in a series of cases of chronic bronchial and pulmonary affections, that I have ventured to record the results I have obtained in this paper.

As the members are well aware, this method of intratracheal medication is not a novel one; indeed, it was employed in prelaryngoscopic days by Horace Green, of New York, as far back as 1855, when he injected a solution of nitrate of silver into the larynx by means of a rubber tube. But this procedure was generally condemned by the New York Academy of Medicine, although he reported good results at the time. Bennett[1] made practical application of this method in a series of pulmonary affections, and was encouraged by the success he obtained. Downie[2] reported two cases of pulmonary tuberculosis in which the intratracheal injections were employed; the temperature was reduced, and a gain in general health resulted in each instance. Jarrige[3] has recorded favorable results in cases of pulmonary disease complicated with fetid and copious expectoration. Similar observations are made by Stewart[4], Clerc[5], Botey[6], Anderson[7], Brancaccio[8], Desroches[9], and Thompson [10], for the details of which I refer you to their original papers. Campbell[11] has given intratracheal medication a thorough trial, having injected, he says, as often as four thousand times in a series of cases of asthma, bronchitis, bronchorrhea, pulmonary tuberculosis, hemoptysis, and abscess of the lung. He obtained the best results in cases of abscess of the lung, but in every case of pulmonary tuberculosis he treated, the patients expressed themselves as much benefited; even the fatal cases experienced relief from cough, pain, and expectoration.

My own experience with intratracheal medication has been confined to the last two years in a series of cases embracing asthma, pulmonary tuberculosis, bronchorrhea, chronic catarrhal cough, and fetid bronchitis. It seems to me a much more satisfactory way of dealing with respiratory affections of this class than the usual plan of medication by the stomach, which only too frequently disorders the digestion without relieving the pulmonary affection. This is particularly true of cases of pulmonary tuberculosis, where it is of the utmost importance that the patient's strength be maintained by perfect digestion and assimilation. So impressed have I become with the advantage of intratracheal medication over the gastric route that I

*Read before the Section of Otology and Laryngology, College of Physicians of Philadelphia, Dec. 18, 1901.

have, to the lasting comfort and benefit of my patients, discarded all cough syrups, mixtures, elixirs, and other nauseating drugs of that class.

In my earlier experiences with intratracheal medication I used the Muir syringe, but I soon found that the wide barrel of this instrument obscured the line of vision, and I could not always be certain of entering the trachea without causing the patient some discomfort. For more than a year I have been using an antitoxin syringe with a glass barrel of two drachms capacity and a graduated piston with an asbestos plunger. The piston is fitted with a thumb ring, and attached to the barrel is a revolving collar, with rings for the insertion of the index and middle fingers of the right hand—a device of much value in steadying the instrument during its use. To the syringe is attached a suitably bent laryngeal cannula with a closed tip but having four fine lateral openings near the end, an advantage over the closed tip, which discharged the injection too freely, producing paroxysmal coughing. The entire instrument can be readily sterilized. The technique I have employed is as follows: The larynx is first anesthetized with a four-per-cent solution of cocaine on a cotton-wound applicator, the syringe is then charged with the selected medication—one to two drachms being the amount employed—the patient is instructed to protrude the tongue and hold its tip in a napkin while the operator, guided by the laryngeal mirror in full illumination, inserts the tip of the syringe between the vocal cords, and while the patient takes a deep inspiration the injection is slowly discharged into the trachea.

If the above details are carefully carried out there are no unpleasant after-effects, but, on the contrary, the patient is impressed with the beneficial results of the injection, which can be felt for several hours over the entire pulmonary area. In many instances I have detected the odor of the medication in the patient's breath twelve hours after the injection was given. In suitable cases cough is controlled, fever is reduced, and expectoration is diminished. The injections are given at first daily, and then at lengthening intervals as the case improves. The vehicles I have found most satisfactory are any of the fluid petroleum oils, such as bezoinol, alboline, etc. Pure olive oil is also excellent for this purpose, and, following the suggestion of Campbell *(loc. cit.)*, I have found Price's distilled glycerin of much value. The medications which have given me the best results are creosote, menthol, guaiacol, or camphor, in from one- to four-per-cent solutions. Where catarrhal cough was a prominent symptom, the addition of one-eighth of a grain of morphine or codeine was an advantage, while in cases of bronchial asthma five minims of the compound tincture of benzoin and five minims of chloroform were found to be a useful addition to each injection.

If the injections are given with careful technique, as outlined above, the patient experiences little or no discomfort. To insure their successful administration, it is necessary to avoid irritation of the fauces, the base of the tongue, or epiglottis with the cannula. Care must also be taken that the fluid does not enter the esophagus instead of the trachea, and that the injection is not given during expiration.

The following brief notes from my case records will indicate a few of the types of cases in which I have found intratracheal medication of service:

CASE I.—H. R., aged forty-seven years, male, consulted me in October, 1900. He

gave a history of a constant cough with mucopurulent expectoration and gradual loss of flesh and strength for about one year previously. His family history was negative as regards tuberculosis. Physical examination revealed abundant moist râles in the larger tubes over the entire pulmonary area. There was also prolonged expiratory murmur, but no impaired resonance. The laryngeal mucous membrane was intensely hyperemic and somewhat swollen, and the cords were congested. The sputum was examined, and tubercle bacilli were found in large numbers, by different competent observers. There was an evening rise of temperature to about 101°, and a morning subnormal remission. A diagnosis of diffuse pulmonary tuberculosis was made, and as the patient was a man of ample means and abundant common sense, he was frankly told of his condition, so as to insure his coöperation in the treatment. He was placed in the best possible hygienic environment, living an open-air life in the suburbs of the city, and his strength was maintained by generous diet and tonics. He was given a daily intratracheal injection of two drachms of one-per-cent creosote with two-per-cent menthol in olive oil. At the end of two weeks he began to notice that his cough was decidedly less and the expectoration diminished, while the evening rise of temperature rarely exceeded 99.4°. The injections were then given on alternate days for a month, and later at weekly intervals for three months. The patient steadily improved in every way, and after his return in September of this year from a three-months' trip to Europe, most of which was spent cruising in the Mediterranean, careful examination showed his larynx normal, his chest free from râles, respiratory murmur normal. His expectoration was greatly diminished, and several expert examinations of his sputum at different clinical laboratories here and in New York City showed complete absence of the tubercle bacilli.

I have had equally gratifying results in three other cases of diffuse pulmonary tuberculosis, in which the diagnosis was made from the presence of tubercle bacilli in the expectoration.

Case II.—W. D., male, aged fourteen years. Three years previously to my seeing him on March 24, 1901, he had measles complicated by catarrhal bronchitis, which gradually became chronic, with persistent cough and profuse, fetid, yellowish expectoration, which resisted all forms of internal medication. He was very cachectic. He was given a daily intratracheal injection of two drachms two-per-cent menthol in olive oil, to which was added two grains of iodoform. At the end of two weeks marked improvement was noticed. The injections were given every third day for a month, and resulted in complete recovery. The cough and expectoration disappeared, and a gain of fifteen pounds in weight was noted. I examined this boy on the 14th of November last, and found him in perfect health.

Case III.—M. B., female, aged thirty years, kindly referred to me on September 21, 1901, by Dr. Joseph O'Malley of this city, with the following history: She has had attacks of paroxysmal asthma, averaging about six attacks a year, each lasting about two weeks. The present attack had been the most severe of all, and had been continuous for six weeks previous to the time I first saw her. As no reflex cause of asthma could be discovered in the nose, heart, or kidneys, and as there was no history of uterine or ovarian disorders, I regarded the case as one of true bronchial asthma, with a distinct hereditary history—her mother, her maternal uncle, and one brother having suffered from the disease.

She was given a daily intratracheal injection of two-per-cent menthol in olive oil. After the second injection she had no recurrence of the paroxysms, but it was considered advisable to continue the treatment for two weeks longer.

Case IV.—M. T., female, aged forty-three years, for many years has been troubled with a hacking cough which is always worse in the cold weather, and has resisted all forms of internal medication. I examined her for the first time on February 20, 1901, and found she had a subglottic laryngitis, the hyperemia extending down the trachea as far as I could see with the mirror. Physical examination of her chest revealed nothing abnormal, except some moist râles in the larger tubes. Her expectoration, which was slight, consisted of frothy mucus, and did not contain any tubercle bacilli. I considered the case one of chronic catarrhal cough resulting from subglottic laryngitis and tracheitis. The patient was given a daily injection of two-per-cent menthol in olive oil for a week. As almost immediate improvement resulted, the

injections were given every third day for two weeks, when it was noted that the cough had entirely disappeared. In September last, during a sudden change of weather, the cough returned, but it was promptly controlled by daily injections for three days, and has not since recurred.

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ADRENALIN A VALUABLE AID IN SURGICAL WORK UPON MUCOUS SURFACES.

By Flemming Carrow, M.D.,

Professor of Ophthalmology, Otology, and Rhinology in the Medical Department of the University of Michigan, Ann Arbor, Mich.

A few months since several specimens of a solution of adrenalin chloride, varying in strength from 1:1000 to 1:10,000, were placed in my hands with the request that I experiment with the new preparation in order to assist in arriving at definite conclusions regarding its helpfulness in certain lines of surgical work, and more particularly work upon mucous surfaces. Consequently I have been employing adrenalin in various ways during the past six months.

The visible effects of adrenalin chloride solution are much more constant than those of cocaine, and the preparation seems stable and reliable at temperatures at which it is likely to be kept. I have been particularly gratified with its use in my public clinical work, and the satisfaction I have had with it in this direction leads me to report the results one may expect from a practical use of the preparation.

I prefer the solution in the strength of 1:2000. This solution possesses all the properties that are of such valuable assistance in work on the eye, nose, and throat, and is safe and free from the danger of cerebral-stimulant effect, sometimes seen after the use of cocaine. In my clinic it has come to be a part of the routine treatment of inflammatory conditions of the ocular conjunctiva, especially those attended by great engorgement of the conjunctival vessels. There is no question as to its control over pain which results from fulness of these vessels, and it possesses antiseptic qualities of no mean order.

When I desire to have a clear field, free from annoying hemorrhage, in surgical work, my plan is to instil sufficient of the adrenalin solution into the conjunctival sac to come into contact with the whole of the mucous surfaces of the eye and lids, and to allow it to remain there about half a minute. This is done after cocainization sufficient to secure anesthesia. I now begin the operation. If the surgical procedure is to be confined to the conjunctiva, this one application is quite enough, but if it be designed to go below this membrane, I repeat the application, dropping the solution directly into the wound; then, waiting from fifteen to twenty seconds, I proceed. Every step of the operation is now clearly seen: no time is lost in sponging away blood, and if no vessel of considerable size is cut, the operation is practically bloodless.

In operations upon any of the structures within the nasal cavities, I have been fully as well pleased as with the effect of the preparation on the eye. In producing anesthesia within the nose I use a six-per-cent solution of cocaine hydrochlorate, and immediately before beginning to operate I brush over the parts the solution adrenalin chloride, 1:2000.

Every one accustomed to operate on the turgid turbinated bodies, or on the nasal septum, will recall how freely the parts bleed, the hemorrhage covering the field of operation so completely as to require the constant use of the armed applicator in order to clear away the blood. Now, however, one may proceed quite at his pleasure, feeling sure he will complete any short operation, such as the removal of the turbinal or a septal spur, before the annoying bleeding from cut surfaces will interrupt the procedure. It is true that free bleeding follows the retractile effect of the adrenalin, but this occurs after the operation has been completed, when there is both room and time to control it; it cannot in any way

interfere with rapid and complete cicatrization, the condition we wish to establish by the operation. Turgescence following operations upon mucous surfaces is not to be looked upon as an unfavorable condition, and besides, I doubt very much if the sum total of blood lost, after the effect of the adrenalin has passed away, is greater than in operations in which it is not used. When it has not been applied there is constant general oozing, from the very first step of the operation to its close and afterward; whereas, under adrenalin, there is no loss of blood until the operation is completed.

From the frequent use of this preparation in my clinical work in the University Hospital, as well as in private practice, extending over a period of several months, I cannot but regard the drug as a very valuable aid in surgical work upon mucous surfaces.

THE USE OF TUBERCULIN IN MEDICINE.

By Silvio von Ruck, M.D.,
Asheville, N. C.

Under this title in the Therapeutic Gazette (Nov. 15, 1901) the Editor again expresses the view that tuberculin ought not to be employed as a therapeutic agent for human beings, and that its use as a diagnostic agent is usually if not always unnecessary, and perhaps unwise. However, he is liberal enough to add that some of those who oppose this view have had so much clinical experience that their opinions must be regarded with respect.

In the absence of any data upon which the Editor bases his opposition to the use of tuberculin, it would appear that he has personally no practical experience to offer, unless an unsatisfactory one from its employment in its early history.

The so-called failure of tuberculin at that time, and the unfavorable results obtained by many who then administered it in a limited number of cases, have again and again been shown to be the natural consequences of inexperience in the application of the remedy as well as of a bad selection of cases. The doses then in vogue were excessive, and were often given with the intention of causing a reaction (which latter was supposed to be beneficial), while, as a rule, advanced cases were selected in which the pathologic changes had so far progressed that an unfavorable course was already conditioned.

As to the diagnostic value of tuberculin, a recent paper by Dr. Otis is cited with the object of pointing out a train of undesirable symptoms constituting a general reaction. Quite rightly, in this connection, the Editor considers the diagnostic use of tuberculin as unnecessary in a great number of cases in which a fair degree of certainty in diagnosis is obtainable without its employment, an opinion which is to be most heartily indorsed. However, objection must be taken to the Editor's position in discrediting the diagnostic value of tuberculin, because Dr. Otis and others have found that even a considerable number of syphilitics showed a reaction. In the consideration of this point I desire to direct attention to the well established fact that syphilis and tuberculosis are frequently associated in the same individual. The syphilitic, as a consequence of his specific disease, is lacking in normal vital resistance to bacterial invasion, and is therefore in a degree predisposed to the acquirement of tuberculosis. It is true also that a latent tuberculosis may become a progressive one after syphilitic infection.

We know that "chance" post-mortem discoveries in patients dead of accident or of other disease have proven the existence of tuberculosis of bronchial and mesenteric glands, and even of smaller pulmonary foci, which during the life of the subject was not suspected, or may very readily have escaped recognition by the ordinary methods of physical examination.

Are we then to assume that because reactions to tuberculin have occurred in the subjects of specific disease the remedy is unreliable as a diagnostic agent? We are by no means justified in drawing such a conclusion. We know that the majority of syphilitics do not react, and in those who do I maintain that tuberculosis is actually present, although no physical signs may be in evidence; further, that instead of an uncertain diagnostic agent, we have in tuberculin a most valuable and exact one, because it so surely demonstrates the existence of tuberculosis in instances in which all other diagnostic means afford us no information.

The interest attached by the Editor to the fact that of eight cases of tuberculosis in which physical examination showed sufficient evidence for a diagnosis, or in which tubercle bacilli were found in the sputum,

and of which Dr. Otis says that "when a case of tuberculosis not far from the incipient stage, with tubercle bacilli in the sputum, fails to react, one's confidence in the test is, temporarily at least, a little shaken," is only of interest to those who have not fully studied the subject in all its relations.

A little closer consideration of the matter will afford the desired explanation, and will, I trust, remove the Editor's interest and restore Dr. Otis to his accustomed faith. As to the latter's statement that the cases in which he reports a failure of the test were not far beyond the incipient stage, I presume that he bases this judgment upon the limitations of the pulmonary affection as determined by physical examination, as well as upon the general condition of the patients. Granted that these were early-stage cases according to the usual classification, let us analyze them a little more carefully. In those in which tubercle bacilli were found in the sputum a destructive process of some extent must have already taken place; otherwise the bacilli could not have been present in the expectoration. The particular foci, therefore, from which the germs came were not in the incipient stage of tuberculous evolution; on the contrary, they were in the last stage, inasmuch as they were undergoing disintegration.

As concerns those cases in which no tubercle bacilli were demonstrated, we have neither the means of ascertaining how long the disease had been in existence, nor can we be sure that at a previous date the bacilli might not have been present in the sputum, having come from some caseous focus, possibly too small or too deeply seated to furnish marked physical signs, either on percussion or on auscultation. Again, unless the sputum submitted contained matter from the destructive lesions, we would not expect to find the bacillus. The patient may furnish only bronchial mucus, whereupon nothing is found, whereas a subsequent specimen may contain the germs. Such experience is not infrequent in practice when repeated examinations have been made in a given case. Furthermore, a destructive process may occur, and the caseous detritus may become absorbed, inspissated, or encapsulated without any expectoration whatever; and finally, in a patient who shows on examination only incipient pulmonary involvement, there often exist old tuberculous lesions in the bronchial, mediastinal, or mesenteric glands, the presence of which we cannot always detect.

Much of the foregoing may seem irrelevant, but still bears upon the explanation of the failure of the tuberculin test in Dr. Otis's cases, which is to be sought for in the following facts:

1. Tuberculin contains specific toxins of the tubercle bacillus.

2. These toxins are not liberated to an appreciable degree within the infected organism during the early period of the disease.

3. Toxins of the tubercle bacillus are liberated in small quantities within the infected organism in the more advanced stages, especially at a time when softening and excavation are taking place.

In the class of cases in which small amounts of toxins are being liberated as a result of the disintegration of caseous and necrotic tissues, the organism becomes gradually accustomed to their presence. In other words, a certain degree of toleration is acquired, in consequence of which the minute quantity of toxin contained in the test-dose produces no reaction. In such cases we can rarely require the aid of tuberculin for diagnosis, but if for experiment it is nevertheless used, larger than ordinary doses are necessary to cause a reaction, for the reasons already stated.

It is, to say the least, remarkable that those who have familiarized themselves with the use of tuberculin (among whom may be mentioned B. Fraenkel, Turban, Heron, Brieger, Moritz Schmidt, Petruschky, Beck, and many others whose opinion is entitled to our respect) indorse it not only as a safe and reliable means for diagnosis, but, many of them, as valuable in the therapeutics of the earlier stages of tuberculosis, without expecting, however, that it will remove caseous, fibroid, or destructive processes.

Up to the close of the year 1900 the reports of the Winyah Sanitarium show a thousand cases of pulmonary tuberculosis treated with culture-products of the tubercle bacillus. Upon a conservative estimate these patients received at least 100,000 injections of tuberculin preparations, from the first crude tuberculin of Professor Koch to the more perfected products of the present day. It is worthy of note that only twice did an excessive and alarming reaction occur, and this happened during the first few months' experience. In neither

of these two cases was there any lasting injury, while one of them made a good recovery and remains in satisfactory health at the present day. Furthermore, the results which have been obtained excel any that have been recorded prior to the adoption of this method of treatment, whether in institution or in private practice.

For diagnosis there is not often occasion to employ tuberculin in institution practice, because in the clinical material coming under observation the diagnosis is, as a rule, sufficiently plain. In 240 instances, however, in which tuberculin was employed in the Winyah Sanitarium to confirm the clinical diagnosis in obscure cases, the results were entirely satisfactory, not only in the exactness of the test, but in the absence of undesirable consequences.

When we consider the excellent results which have been obtained with the remedy we may naturally inquire: Why is it that so many of the profession fail to appreciate its advantages? Because they look upon its application as a matter of mechanical simplicity. If they would but consider that the successful employment of tuberculin both as a diagnostic and as a therapeutic agent implies something more than the routine of giving hypodermic injections, and if they would give the same amount of study to this that they do to many other subjects in medicine, the great majority of the opponents of tuberculin preparations would find in them a most valuable adjuvant in the diagnosis and treatment of tuberculosis.

RUPTURE OF THE SPINAL LIGAMENTS.

There is reported by PAINTER and OSGOOD *(Boston Medical and Surgical Journal,* Jan. 2, 1902) four cases of injury to the spine in which there was kyphosis without tuberculosis or other disease of the vertebræ; in which there were symptoms of pressure upon the cord, which pressure symptoms were relieved and the patients made entirely well, functionally, in the course of a few months after treatment with plaster or leather jackets was begun.

An analysis of the eighteen known cases of such an affection, from the pathological point of view where this has been possible, and from the clinical and anatomical point of view in other cases, would seem to justify the following conclusions:

Spinal ligaments, during life, may be ruptured without fracture or dislocation.

Nerve pressure symptoms may occur from a simple flexion of the vertebral column.

Recovery in these cases requires prolonged rest in a position which favors the repair of ligaments. The effects of treatment speak more for the ligamentous rupture than for luxation or fracture.

The force which commonly produced the injuries (when stated) was one which *a priori* would be most likely to produce ligamentous rupture.

The cases from which the above conclusions were derived are classified as injuries to the spine accompanied by ruptured ligaments. This is not intended to include either luxations or fractures, though there have been two or three exceptions made.

DISINFECTION OF SURGICAL INSTRUMENTS BY SOAPY-SPIRITS.

POLAK *(Deutsche Med. Woch.,* No. 36, 1901; abstracted in *Centralblatt f. Chir.,* No. 47, 1901) states that the spiritus saponis kalinus will destroy within fifteen minutes the staphylococcus; and that its germicidal power is noticed after contact of only one-half a minute. Its action is both chemical and mechanical, and it is especially to be recommended for the disinfection of all forms of cutting instruments which by this method do not lose their edge. The instruments should be laid in this solution for fifteen minutes before operation, and then should be dried with a sterilized towel or pad. If one prefers, the soap can be removed by the application of 50-per-cent alcohol or a sterile solution of boracic acid.

VESICATION BY MEANS OF HYDRATE OF CHLORAL.

BONNET *(Revue de Chirurgie,* No. 1, 1902) spreads upon the surface of ordinary diachylon plaster a layer of hydrate of chloral. This plaster is then applied to the skin. In a quarter of an hour there is a sense of heat followed by burning. In twenty or thirty minutes it is removed, when phlyctenulæ will have formed. This constitutes a convenient method of blistering.

The Therapeutic Gazette

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Leading Articles.

THE CONDITION OF THE HEART IN CERTAIN ACUTE DISEASES, AND ITS TREATMENT.

A most interesting paper has recently been contributed to the *Lancet* of February 1, 1902, by Dr. D. B. Lees, who is Senior Physician to the Great Ormond Street Hospital for Sick Children, London, and whose opportunities for studying pathological changes in the heart of the child have been greater than those which fall to the lot of most practitioners. The address which we speak of was that of the President before the Harveian Society of London, and Dr. Lees begins by pointing out that physicians as a rule do not pay sufficient attention to the condition of the heart of the child, nor do they appreciate the great calls which are made upon it in ordinary life and in the processes of growth. He shows by simple calculation that the child's heart beats 31,536,000 times every year, and that if it survives for fifty years, it will have performed the enormous number of 1,576,000,000 beats; and if this is translated into English measures of energy, in fifty years the heart will have to lift 1,500,000 tons to the height of one foot. It is not difficult, therefore, to understand why under certain circumstances the heart of the child fails to supply the organism with blood sufficient for its needs. We are glad to see that in the course of this discourse Dr. Lees emphasizes the importance of light percussion for the purpose of outlining the margins of the heart, and that he rather favors the use of the term "a fingerbreadth" for measuring distances, saying that if any one objects to this term as unscientific, he may say instead "two centimeters," but that he does not thereby make the measure more accurate; he only introduces a false idea of mathematical precision.

Amongst the pathological conditions which are particularly to be noted in children is the state of the heart in cases of diphtheria; a disease in which sudden death not infrequently occurs as the result of cardiac lesions. Lees asserts that if dilatation is found to the amount of two fingerbreadths to the left of the nipple line, the danger of death is great and the case should be very closely watched. The patient should therefore, be kept at complete rest, and cardiac tonics be cautiously and carefully administered. So, too, it is not uncommon to find that there is considerable enlargement of the right ventricle, both during and after pneumonia, and in typhoid fever a gradual enlargement of the left ventricle can usually be found with a diffuse and weakened apex beat. As is well known, in rheumatism endocarditis, pericarditis, and often myocarditis are present, and an examination of the heart of most children under these circumstances will show that the left border of cardiac dulness always extends beyond the nipple line, although as the attack subsides the area of dulness may return to the normal limit.

In regard to the question as to whether treatment can influence this rheumatic condition to any great extent. Dr. Lees expresses some interesting views which differ somewhat from those which are generally held by many physicians. In reply to the question, Can we by the administration of drugs directly destroy the microörganisms of rheumatism or arrest their growth or

increase without damage to the child? he replies that in sodium salicylate in adequate doses we have a drug which is definitely antagonistic to the rheumatic process, and he does not believe in the theory that sodium salicylate merely relieves pain. He bases this upon the fact that small doses of the salicylates are very frequently followed by relapses, whereas large doses are not; and he objects to the idea that salicylate of sodium is depressing to the heart, believing that the cardiac depression is due to the rheumatic poison, and he asserts that children bear the salicylates well. So strong is his belief in this view that Lees asserts that the salicylates are as necessary to a rheumatic child as mercury is to a syphilitic infant, and that children with a tendency to rheumatism ought to take a small quantity of the drug daily for a long time. Lees believes with other English physicians that sodium bicarbonate is well combined with the salicylate, and not only does he think that these drugs influence the joint condition, but that the heart improves under their influence. He also thinks that there are several valuable measures which can be employed for the repression of cardiac irritation; that leeches applied over the liver diminish the congestion of the cardiac vessels, and that an ice-bag placed over the precordium certainly limits cardiac inflammation; that digitalis is of little service in the treatment of rheumatic cardiac inflammation in the child, and that its chief use is later on when cardiac lesions are chronic. If the ventricles are dilated and enfeebled by toxemia, the hypodermic use of strychnine is of great utility, and when collapse is threatened in diphtheria, atropine is the best remedy.

It seems to us that these views of Dr. Lees are well worthy of careful consideration. The therapeutic suggestions which he makes are by no means new, but they strongly emphasize one or two points with which American physicians are not perhaps as much in touch as they should be, namely, the use of leeches for the purpose of removing blood from an engorged heart and engorged liver. There can be no doubt that the leech not only produces some effect by the small quantity of blood which it abstracts, but that it produces an equal if no greater effect by a reflex action which is allied to counter-irritation, and thereby influences the circulation in the heart. The other point of importance which he emphasizes is the necessity of carefully examining the outlines of the heart in all illnesses which are apt to affect the cardiac muscle in childhood.

THE QUESTION OF THE EMPLOYMENT OF TUBERCULIN FOR DIAGNOSIS OF TUBERCULOSIS OF THE LUNGS.

This subject was discussed in the editorial pages of the GAZETTE for November, 1901, and the writer took the ground that the use of tuberculin was an unnecessary diagnostic measure, since in the vast majority of instances a careful examination of the chest in a case of suspected tuberculosis would reveal sufficient physical signs to put the physician at least on his guard and to cause him to institute a plan of treatment designed to protect the patient from further progress of the disease. Since writing this editorial, several communications have been received concerning it; one from a well known practitioner of large experience who took the trouble to write and state that the views were exactly in accord with his own, and that he was glad to see them published in the GAZETTE. Another communication has been received from Dr. S. von Ruck, of Asheville, N. C., in which he takes an absolutely opposite stand, and this communication we publish in the present issue of the GAZETTE in the Original columns, since we are desirous of presenting all sides of the question to our readers, and allowing them to decide such matters for themselves.

In the meantime there has appeared in the London *Lancet* of December 28, 1901, a clinical lecture by Mr. Arthur Latham, of London, in which he advocates the employment of tuberculin in the early diagnosis of pulmonary consumption. After citing a number of instances in which the physical signs or the symptoms presented by patients were sufficiently indicative of various phases of pulmonary tuberculosis to enable a diagnosis to be made without the use of tuberculin, he goes on to cite conditions in which it is difficult to decide as to the presence of tuberculosis, and he points out that certain cases present themselves in early consumption in which there is progressive wasting, general ill health, occasional attacks of influenza or feverish colds, slight cough, anemia, and feeble digestion, and yet in

which the characteristic signs of pulmonary tuberculosis are absent. It is in this class of patients that he believes that tuberculin should be employed. He admits and indeed emphasizes the fact that the use of tuberculin under some circumstances is decidedly disadvantageous, and that it ought never to be employed when the process in the lung is manifestly active. He also speaks of the disrepute into which Koch's tuberculin fell after its promising announcement; of Virchow's remarks in regard to its tendency to generalize the disease, and of the statement signed by eight physicians of the Brompton Hospital for Diseases of the Chest which supported this view of Virchow. Even in instances in which the physical signs present point to extensive mischief, and he is in doubt whether the disease is tuberculous, he does not use tuberculin, nor does he use it, as we have said, if he is certain of his diagnosis by other means. In obscure cases he believes it is a valuable aid, and he also thinks that it is fairly reliable.

While it is perfectly true, as we pointed out in the previous editorial, that syphilis and some other diseases often give a reaction to tuberculin, when no tuberculosis is present, it is also claimed by the advocates of this method that in these patients there may be a tubercular lesion deeply seated and unrecognized which apparently throws discredit upon the test, since it produces a reaction. The method employed by Latham is best described as follows:

The old tuberculin of Koch—which is free from tubercle bacilli—is diluted with a 0.5-per-cent carbolic acid solution, so that a one-per-cent of tuberculin is obtained. No more of the dilution should be prepared than is likely to be sufficient for the requirements of a few days, and as soon as the solution becomes at all turbid, it should be thrown away. The temperature—preferably of the rectum—is taken every four hours for three days before the injection is made, and if there is any appreciable fever the injection must be put off for a time. The injection, according to the experience of Dr. S. Vere Pearson, late house physician at the Brompton Hospital, gives rise to less inconvenience when made in the loin than it does if made in the arm or abdominal wall. The temperature must, of course, be taken after the injection is made every four hours as before.

With regard to the amount of tuberculin used, his object is to inject just sufficient to cause a rise of temperature—that is, he tries to avoid causing a greater rise than is absolutely necessary. If the patients are what may be described as weaklings, or if the signs are extremely suspicious, he commences with 0.001 cubic centimeter of tuberculin in the case of adults (0.0005 cubic centimeter for children)—that is to say, one milligramme or half a milligramme; this is most safely accomplished by using a syringe of one cubic centimeter capacity and injecting a tenth part of the one-per-cent solution of tuberculin which it contains. A rise of temperature of 1° F. may be considered to be a positive reaction; it is important to remember that this may, under exceptional circumstances, be delayed for thirty-six hours. If no reaction follows he waits three days and injects five milligrammes (for adults), though if there has been some oscillation of temperature, but no definite reaction after the first injection, three milligrammes may be sufficient. If there is still no reaction he again waits three days and then injects one centigramme (for adults); if there is no reaction now, tuberculosis can be excluded. In cases in which the patients are more robust, or in which the symptoms and signs are more indefinite, he uses larger injections—five milligrammes for the first, one centigramme for the second, and two centigrammes for the third. Patients must be kept in bed after the reaction has passed off—that is to say, for about twenty-four to forty-eight hours.

FEEDING IN TUBERCULOSIS.

In the active seeking of remedial measures and drugs which will benefit those who suffer from tubercular infection, the medical profession has at times run to extremes which have been emphasized in their degree by further experience. As a matter of fact, the only therapeutic measure which can be said to be really reliable in the treatment of pulmonary tuberculosis is resort, at a proper period of the disease, to proper climatic influences. Drugs alleviating certain symptoms and aiding in the improvement of nutrition are of advantage in all cases, and proper feeding is of course an absolute necessity. From time to time various persons have brought forward the idea that as tuberculosis of the lungs is essentially a

wasting disease, so much so that it has the name of "phthisis," forced feeding or superalimentation, as it has been called by French clinicians, would be advantageous in a considerable proportion of cases. Certain physicians have already reported instances in which superalimentation has been followed by marked improvement in the general health of the patient, and also in the local lesions in the lung; other members of the profession have always been doubtful as to whether these good results could be entirely due to forced feeding.

Because of these facts we are particularly interested in a recent report made by Bardwell, Goodbody, and Chapman of London, acting under the Scientific Grants Committee of the British Medical Association. This report deals with the results of their chemical and physical investigations upon a certain number of persons in health and others who were suffering from pulmonary tuberculosis, and the object of their research has thrown some light upon the question as to how to feed patients suffering from this disease. The cases selected were considered fairly typical instances of the malady, and were patients in the Brompton Hospital for the Diseases of the Chest. Before the commencement of the observations the food of each patient was weighed separately in order to find out the composition of his ordinary diet, and from this a diet list was made out for one week. The details of their experiments may be found in the *British Medical Journal* of February 22, 1902, and the conclusions which they arrive at seem to us of great interest, although the number of cases which they studied and the duration of the period in which the persons were under observation seem to us too limited.

The observations on these cases show the following points of interest:

1. That pushing the amount of proteid in the diets in Cases I and II resulted in

(*a*) An increased excretion of nitrogen out of all proportion to the increased amount retained.

(*b*) A diminution in the percentage of nitrogen excreted as urea, and consequently an increase in the percentage amount excreted in less oxidized forms, indicating diminished nitrogen absorbed.

(*c*) A diminution in the percentage of nitrogen absorbed.

(*d*) An increase in the amount of aromatic sulphates excreted, indicating increased intestinal putrefaction.

2. The absorption of fat remained very good in all six cases, even when large amounts were taken.

3. The amount of nitrogen excreted in the urine on comparable diets was very small in cases much below weight, and was largest in patients approaching or up to their normal weights.

4. Clinically it was observed that the very large diets gave rise to much anorexia, dyspepsia, and in one case to vomiting. It was also noticeable that the onset of dyspeptic symptoms nearly always coincided with experimental figures indicating deranged metabolism.

5. In every case weight was gained, the gain being greatest on the very large diets, but with these large diets the gain was achieved at the expense of the physical well-being of the patient, as was shown by clinical and experimental results.

6. It was observed in regard to the diets that the original generous hospital diets of the cases reported, which was that of the special sanatorium wards, was found to be satisfactory in every respect, and was not improved upon during the month's observations.

The effect of forced feeding upon three normal individuals up to weight and in nitrogenous equilibrium were:

1. A marked increase in the amount of nitrogen excreted in the urine, with a proportionate increase in the amount of urea.

2. No diminution in the absorption of nitrogen.

3. A diminution in the absorption of fat.

4. A rapid and large gain in weight, which was in every case associated with marked impairment of general health. The chief symptoms induced were anorexia, nausea, dyspepsia, drowsiness, abdominal discomfort, and diarrhea.

5. The weight put on was rapidly lost on resumption of ordinary feeding.

In conclusion the following suggestions are made:

Since very large diets gave worse results than those of more moderate amount, the indiscriminate stuffing of all tuberculous patients should be replaced by systematic dieting. The diet as regards amounts and constitution should be determined in each case after due consideration has been given to the respective conditions as regards:

(*a*) The activity and extent of the disease; (*b*) amount below weight; (*c*) digestive capability; and (*d*) to some extent, personal dietetic likes and dislikes.

OÖPHORECTOMY FOR CANCER OF THE BREAST.

For several years there have been reports of cure of cancer of the breast following oöphorectomy, the latter operation being performed either for other ends or because of its supposed curative effect upon the cancer. In the last six months this treatment has become almost popular because of some cases in which apparently striking results have been attained at the hands of men trusted by the profession at large for their powers of observation and the accuracy and reliability of their reports. Butlin calls attention to the fact that in 1896 Beatson exhibited two women before the Edinburgh Medical Society who had been subjected to what he then called a "new treatment." This was removal of the ovaries. One of these women, eleven months after this operation, appeared to be perfectly freed of an absolutely inoperable condition of cancer.

Butlin reviews the English literature and experience covering this treatment very thoroughly, and comes to the conclusion that there is but little evidence to prove that oöphorectomy can cure any women of cancer of the breast. It is quite certain that a very large number of those who have had this operation performed, and who have been soaked with thyroid extract, have not received the smallest benefit in the world. It is true that this combined treatment has, for the most part, been employed in very bad cases of cancer where the disease has recurred, and where there have been a number of cancerous nodules scattered through the body. It is also true that in a very small percentage of cases there has apparently been an arrest of the progress of the disease following oöphorectomy and the administration of thyroid.

The fact, however, is well known that independent of any treatment cancer sometimes becomes arrested in its growth, and exceptionally undergoes spontaneous involution. Because of this arrest, which is an occasional feature of the disease, competent observers report cures or ameliorations from a great variety of treatments, arguing falsely that the disease in its natural course always proceeds steadily and rapidly. Quite typical of the experience of the vast majority of men who have tried oöphorectomy and thyroid extract are the following two recent observations recorded by Paton (*British Medical Journal*, March 1, 1902):

The first case was a woman forty-three years old, who had been suffering from a rapidly growing tumor of the left breast for three months. The entire region was infiltrated, and the axillary glands were involved. The complete operation was performed, but the growth recurred in the scar and ulcerated. The other breast also became involved. Oöphorectomy was performed, and the patient was put on thyroid extract, five grains three times a day. This, however, was continued for only three weeks. The treatment had no apparent beneficial effect.

The second case was a woman thirty-one years old with extensive cancerous involvement of the breast and glands. All the cancerous tissue was removed, and oöphorectomy was performed, but there was a speedy recurrence and the patient died.

If all the unsuccessful cases were reported, the slight and insufficient evidence in favor of the operation would probably be effectually and completely smothered.

EARLY INTERVENTION IN THE TREATMENT OF TRAUMATISM OF THE LIVER.

The report of a statistical study by Scudder based on 543 cases has shown that when death occurs within twenty-four hours it is generally due to hemorrhage. A logical deduction from this fact is that the only treatment to be seriously considered is immediate celiotomy, followed by exposure of the bleeding point or points, and a checking of the hemorrhage by mechanical means. Mercede (*Revue de Chirurgie*, No. 1, 1902), prompted thereto by Scudder's statistics, opened a man one and one-half hours after he had been stabbed in the hepatic region, though in his report of the case there were no signs of intraperitoneal hemorrhage, excepting a dulness in the right iliac fossa. Guided by the bleeding, he found a large

wound upon the convex surface of the liver, which was closed by means of catgut sutures. The second case, that of a boy sixteen years old, who had been run over, suffered from shock and great abdominal pain. The respirations were thoracic and hurried. There was vomiting. The pulse was described as rapid, but the number of beats was given as 98. There was slight dulness in the region of both the right iliac fossæ. Because of the persistence of shock, though the pulse remained at about 96, laparotomy was practiced about two hours after the accident. Guided by the bleeding, the operator found a rent in the liver about four inches long and an inch deep. This was closed by suturing. The abdomen was drained not only from the region of the wound, but from the right iliac fossa, and from the pelvis. A pressure bandage was applied over the dressing, and the patient was given about three pints of normal saline solution beneath the skin. The same evening the pulse was 92. Recovery was uninterrupted.

Judging by the reports of these cases, in neither was the hemorrhage so profuse as to have necessarily resulted fatally. Indeed, it often happens that after wounds and rupture of the liver, the bleeding is promptly arrested spontaneously. None the less, it remains true that the bleeding of many of these lesions is so profuse and persistent as to cause death, and that the principle of prompt intervention is one that should be adopted as soon as it becomes fairly probable that there is a lesion of the liver.

The symptoms upon which most dependence can be placed are a continued and deepening shock, abdominal pain, increasing dulness in the right iliac fossa, and the signs of hemorrhage. Nor is it wise to wait until these symptoms and signs denote a probably fatal termination of the case.

As to the methods by which a hemorrhage is to be checked, suture and gauze packing are the two means most serviceable: suture in the case of incised wounds, gauze packing reënforced by suturing when the wounds are lacerated or contused. The cautery has proved inefficacious when the hemorrhage was free, and has been followed by a secondary bleeding. As to suture material, catgut of large size seems to be most useful, since it is less likely to tear out than silk or other materials.

SURGICAL TREATMENT OF VALVULAR DISEASE OF THE HEART.

Perhaps it is because of the respect in which Sir Lauder Brunton is held by the profession that his suggestion to treat mitral stenosis by surgical operation has excited such wide comment, and has been received with an amount of seriousness which argues ill for the welfare of the trusting patient in the hands of the ambitious surgeon. Preposterous as the proposal appears at first glance, recent contributions on the subject of heart wounds and of heart sutures bring it at least within the realms of possibility, though a study of the cases of heart suture fails to show one instance in which this method probably saved a life. The patient's recovery, where this occurred, was rather in spite of this procedure than because of it.

Brunton's proposal heretofore has not been carried out except in an experimental way. He suggests introducing a knife through the ventricular wall and dividing the stenosed mitral valve.

The exposure of the heart and the introduction of a narrow-bladed knife into the ventricle without necessarily or even probably causing the death of the patient are comparatively easy matters. The manipulation of the blade after its introduction in such wise that the constantly moving valves cease to abnormally obstruct and yet remain effectual barriers against regurgitation seems beyond human power. None the less, it is probable that the operation will be attempted, and should the patient survive that the case will be reported at least as greatly improved, probably as cured.

Reports on Therapeutic Progress

THE "POULTICE METHOD" OF HEALING CUTANEOUS AND SUBCUTANEOUS ABSCESS CAVITIES.

In the *New York Medical Journal* of February 22, 1902, HUTCHINS, of Atlanta, commends this method of treatment, which is simply to apply over the opening of the abscess a poultice of flaxseed meal, made with three-per-cent carbolic solution, instead of plain water. A thin cloth or gauze layer can be put next to the opening. The three-per-cent of carbolic acid becomes about one per cent in the mixture, and is hence very weakly germicidal.

Nothing is put in the abscess cavity, it simply being emptied of pus by pressure—through a small opening—if not already open. The poultices are changed as often as cleanliness or their getting dry requires.

The wet poultice affords constant drainage and absorbs the discharge. The moisture in the poultice and the constant flow of discharge prevent premature union of the mouth of the cavity. There is no painful packing in of gauze strips and retardation of healing by the presence of the foreign substance—gauze. There is no reinfection in dressing, and there is a saving of from 75 to 80 per cent in time of healing. When incision is necessary it may be small, instead of "free" and long. The pressure of the poultice aids in the coaptation of the walls, and the rapid removal of discharge clears the way for natural reparative processes. The successful use of rubber adhesive plaster on some occasions shows the effect of simple warmth and moisture in facilitating healing from the bottom.

THE TREATMENT OF LOCOMOTOR ATAXIA.

In the course of an interesting *résumé* of this important subject in the *Medical Chronicle* for September, 1901, WILLIAMSON reminds us that the value of antisyphilitic treatment has been much discussed. In well advanced cases it is usually of no service; but cases are on record in which it has appeared to produce some improvement. In all cases in which there has been syphilitic infection only, a comparatively short time before the onset of the tabetic symptoms (five years, Collins), antisyphilitic treatment should be employed at first; also, it should be given when any evidence of syphilitic disease is present, or when the diagnosis is not quite clear between true tabes and syphilitic pseudotabes. Further, if the patient has not had any antisyphilitic treatment for tabes, it is well to give it a trial (as Sir William Gowers recommends), in order that no complaint may be made later that any method of treatment has been omitted that might have been of service. Sir William Gowers and Dr. J. Taylor recommend liquor arsenicalis, and think that it causes some improvement.

Recently Motschutkowski has again strongly recommended the suspension method which he introduced in the treatment of tabes. He has employed it in 993 cases of tabes, and has obtained improvement in 207. The improvement was noticed in the gait, the muscular tone, the general condition, the muscular sense, the paresthesia, neuralgic pain, sexual power, and bladder functions. The patient should be suspended at least 100 times; the duration of each suspension should be one-half to five minutes. The patient should be suspended three to four times per week. One patient was suspended between 400 and 500 times, and another over 1000 times. Motschutkowski has never seen any bad results from this treatment.

Chipault and Bardesco have recorded cases showing the value of nerve stretching (of the posterior tibial nerve) in causing perforating ulcers to heal.

J. Crocq has employed faradism in one case, and obtained good results. A small electrode was placed on the posterior tibial nerve behind the internal malleolus, and a larger one on the sole of the foot, just behind the ulceration. A strong current was passed for a quarter of an hour through the parts. After three weeks' treatment the ulcer became distinctly smaller, and in six weeks was healed.

The greatest advance in the palliative treatment of tabes is Frenkel's method of reëducation of the movements of the ataxic limbs. There can be no doubt that the ataxia of tabes can be often greatly diminished by this system of careful training, in which the patient performs methodically coördinated muscular exercise. By repeated practice the patient learns to perform definite movements with care and precision. Even in severe cases of ataxia good results may be obtained. In carrying out the treatment, overexertion should be avoided. As a rule these exercises should not be carried out whilst the patient is undergoing bath treatment; and Frenkel recommends massage of the muscles during the course of treatment. The exercises should be performed two or three times a day. For the arms special apparatus is necessary, but for the legs no special apparatus is required. Muscular exercise of the legs is performed whilst the patient is in the recumbent position; then exercises are carried out whilst he is in the sitting posture and whilst standing; and finally walking exercises are practiced. The movements are arranged so that care and

precision are needed in carrying them out. Objects are touched by the toe or heel, and in the walking exercises lines are drawn on the floor, and careful movements mapped out. The treatment is carried out at special institutions on the Continent, and much time and patience are necessary. It is not possible in a review to give the details of the various movements by Frenkel. [For directions see the December issue of the GAZETTE, article by Dr. Rhein.]

THE QUIET PRODUCTION OF ANESTHESIA.

FREEMAN states in the *Bristol Medico-Chirurgical Journal* for January, 1902, that to succeed in getting patients into the anesthetic state quietly many little details have to be attended to. One often hears of patients taking the anesthetic badly, but a good deal depends upon the method employed by the anesthetist.

The importance of this quiet production of anesthesia is that the patient's safety is greater. It is when there is struggling, holding of the breath, or vomiting that alarming symptoms may arise. So many deaths have occurred during the "going under" that this is now recognized as the most dangerous period; and in other instances, where death took place later on during the progress of the operation, it was frequently stated that the patients went under badly.

The aim of the anesthetist should be to make the patient pass into the state of narcosis as quietly as he would fall into natural sleep, and this can be attained in the majority of cases. With this object in view, anything likely to excite the patient should be avoided, and everything possible done to calm him.

It is necessary to remember that the patient is naturally in an anxious state of mind when the time for an operation comes. As a rule he shows a brave attitude; but when you examine the heart, the palpitation present reveals the excited condition of the nervous system. The hospital patient is not so difficult to deal with as the private one. With the latter, the presence of anxious friends does not tend to calm him; and now and then a friend will act in an actually mischievous way, as once happened to a patient of the writer. This lady had sent to her by post on the morning of the operation a cutting from a newspaper; it was a report of the death of a person who had died from chloroform. Of course, great anxiety had been caused by this.

Before commencing the anesthetic, there are a few preliminaries to be attended to.

It is well to examine the chest (unless it has already been done), to get a knowledge of the condition of the heart and lungs. The patient, owing to the palpitation, often has an idea that his heart is not strong, so it is reassuring to him when he can be told it is quite sound. This examination should be performed quickly; for any prolonged application of the stethoscope in the cardiac region has a tendency to alarm the patient, as he thinks you have discovered something wrong there.

The position of the patient as he lies on the table or bed is of some importance. Since one is going to imitate natural sleep as much as possible, the patient should be arranged as comfortably as circumstances will allow. The pillow nearly always requires placing in position, and in doing this see that the patient's head is not too much flexed, otherwise he will not breathe freely as he goes under.

The hands should next be attended to. See that they are invariably kept outside the bedclothes; and a nervous patient keeps them near his face, so as to be ready to catch hold of the inhaler. Always have them placed down by the sides, beneath the bedclothes.

The patient at this time will often ask you to be sure he is "asleep" before the operation is begun. You can assure him he will not feel any pain.

The next question frequently asked by the patient is how he shall breathe, whether with his mouth open, or whether he must take deep breaths? The answer should be that you wish him to go to sleep as he usually does, so you do not want him to take deep breaths or to keep his mouth open. The more passive you can make him, the better; any active assistance does more harm than good.

Having by such means as these steadied your patient, ask him to close his eyes and go to sleep. The ordinary patient shuts his eyes, but every now and then opens them to see what is being done. To prevent this place the left hand over his eyes, and wait until the nervousness has passed off and he is breathing regularly. Two or three min-

utes spent in this way with a nervous patient will save a good deal of time in the end. The patient, with his eyes closed in this manner, sees nothing of the inhaler being applied and does not know when the anesthetic is really commenced. Many patients imagine they are having it long before they are, and they are encouraged in this by being told they will soon be asleep. This way of "suggesting" sleep can be made of considerable service, provided the anesthetist has taken the right steps to allay the nervousness of his patient. Many are calmed by it in a remarkable way, and a few are met who, to all appearance, are well on the way to sleep before any anesthetic is used.

PURULENT OPHTHALMIA OF THE NEWBORN.

In the issue of *Medicine* for January, 1902, NANCE writes of this very important subject, and tells us that the local remedies employed in ophthalmia neonatorum are not so important as the manner in which they are used. The solution of boric acid, three-per-cent, is perhaps as efficacious as any that can be used for irrigation. Concerning applications, the author states that he has yet to see the claimed superiority of any of the newer applications over the nitrate of silver. He is accustomed to apply the silver, in the average case presenting a free purulent discharge, of the strength of two per cent, and daily increase the strength until the symptoms ameliorate. It is not unusual to employ solutions as strong as ten and twelve per cent in severe cases. In the first few days of the attack, when the discharge consists of a thin straw-colored serum, such applications are harmful. It is at this stage of the disease that the lids are usually swollen—possibly to such an extent as to prevent free eversion. It is in such a case that canthotomy, freely done, will be of great benefit in relieving pressure, and allow free exposure of the retrotarsal folds, so necessary in making applications. Canthotomy is not a difficult operation, and it is generally followed by marked benefit.

The employment of cold compresses is oftentimes of decided value in the treatment of purulent conjunctivitis. By reducing the temperature of the conjunctiva the condition is rendered less favorable for the growth of microörganisms. Pledgets of cotton, or small pieces of sterile gauze, moistened and laid on a cake of ice, may be applied for several hours at a time. They should be changed every minute or two, and after three or four hours' continuous application may be discontinued for an hour, and then employed again. When swelling of the lids subsides, or corneal haziness or ulceration supervenes, it is well to omit the compresses. The eyes should be carefully examined on the first and on each succeeding day for corneal ulceration. If such occurs, atropine in iodoform ointment may be employed. Corneal involvement in this disease always makes the prognosis grave.

It is not obligatory that the patient with purulent conjunctivitis be confined to a darkened room, as is still the custom in the management of acute ocular disorders in some localities, but should be taken occasionally into the open air and even into the sunshine, the eyes being shaded by means of a dark veil. The infant should receive baths at regular intervals followed by friction, and should be placed under a regular dietary and hygienic regimen.

There will occasionally be met a case of ophthalmia neonatorum that does not do well even when the diagnosis has been made early and intelligent treatment instituted promptly, but the great majority of cases conscientiously treated from the beginning have a favorable outcome.

THE FIRST TREATMENT OF PENETRATING WOUNDS OF THE EYEBALL.

In the *International Medical Magazine* for January, 1902, PYLE tells us that in these cases the greatest cleanliness should be exercised, and if there is reason to expect infection, copious irrigation with solutions of boric acid (10 grains to 1 ounce), mercuric chloride (1:5000), or other similar antiseptic should be practiced. After thoroughly cleansing the conjunctival sac and the seat of the injury, any foreign material or cilia in the external wound should be carefully removed. If, as is rarely the case, the wound is entirely in the cornea, and there is no injury of the lens, or prolapse of the iris, the prognosis is good, and there is often sufficient corneal union in from twenty-four to forty-eight hours to retain the aqueous humor, and effect complete restoration of the anterior chamber. In such cases, after preliminary irrigation, a solution of atropine (1 grain to 1 ounce) is instilled if the wound is central, or a solution

of eserine (1 grain to 1 ounce) if the wound is peripheral, a pressure bandage applied, and patient kept quiet, preferably in a recumbent position, for from twenty-four to thirty-six hours.

If the iris is prolapsed into the wound, and the case is seen immediately after the time of injury, it may be possible to free it and replace it in the anterior chamber by gentle manipulations with a spatula. In such cases atropine or eserine, according to the seat of the injury, a pressure bandage, and rest in bed are indicated as before. If the iris cannot be replaced or the prolapse repeatedly occurs, it should be gently seized with an iris forceps and drawn out of the wound and freely abscised, care being taken that the pillars of the resultant coloboma are not caught in the wound. It is always desirable to release a prolapsed iris, as the healing of the wound is expedited and the chances of dense corneal opacity are lessened. Abscission of the prolapse may be performed as late as several days after the reception of the injury.

If the prolapse is very extensive, or complete restoration or satisfactory abscission is impossible, the eye should be kept under atropine mydriasis, and frequently irrigated while the protruding prolapse sloughs to the plane of the corneal wound.

If iritis is threatened, or the lens is extensively lacerated, in addition to the instillation of atropine, rest, and other treatment, cold applications should be made to the eyeball. A swelling lens may exert sufficient pressure on the ciliary body to necessitate immediate removal of its disintegrated substance by the curette or by ordinary extraction.

Wounds involving the ciliary region (6 millimeters from the corneal limbus) are most dangerous. A ciliary prolapse should be replaced or abscised, unless it is very extensive. If, in addition to the ciliary wound, the lens is injured, and there is already a severe iritis, or the mutilation of the eyeball is so extensive that the preservation of useful vision is unlikely, immediate excision of the eyeball is advisable. The patient is saved a tedious convalescence and spared the possible danger of sympathetic panophthalmitis in the sound eye.

If the sclera is wounded posterior to the ciliary region, any prolapsed vitreous should be abscised; and unless contraindicated by infection or intraocular complications, the conjunctiva over the wound may be sutured, or in case of marked gaping of the wound, superficial scleral sutures may be applied.

The history of penetration of the eyeball by a foreign body renders the aspect of the case very grave. If the foreign body cannot be removed from the eye, not only is serious inflammation of the injured eye likely, but sympathetic inflammation of the sound eye is more than a remote possibility. It must also be remembered that even after removal of a foreign body, the eye may become seriously inflamed or progressively shrink, and give rise to sympathetic inflammation in its fellow. Hence, if the injury caused by the foreign body or necessitated by efforts in its removal greatly impairs vision or endangers the subsequent health of the globe, total excision of the eyeball may be the wisest course. Only in those rare cases in which the foreign body becomes embedded or encysted in the posterior portion of the globe, well away from the ciliary region, is it safe to allow it to rest undisturbed.

If the foreign body is of steel or iron, its removal, even from the vitreous chamber, may be greatly facilitated by the use of the electromagnet. If the foreign body is lying loose in the track of the wound it may be removed with fine forceps or a magnet. If it lies in the anterior chamber it may be difficult to seize, but often the magnet will promptly extract it. If it is in the iris, the forceps or magnet may be tried, and if these fail, an iridectomy including the portion of the iris containing the foreign body may be performed. A foreign body in the lens may be extracted by a magnet, or removed together with the disintegrated lens substance by a curette; or the lens may be allowed to undergo partial absorption, and extracted later with the enclosed foreign body. Of course, in the latter procedure, the risk of irritation is greater, and there is the chance that the foreign body may be lost in the vitreous.

Foreign bodies in the vitreous may be detected by the naked eye, ophthalmoscope, probe, sideroscope, or skiagraphy. They may be removed by the forceps or magnet, either through the wound of entrance or through a neighboring scleral incision. The treatment of these cases belongs properly to the larger hospitals, to which they should be promptly referred after examination and preliminary treatment.

Panophthalmitis occurs within the first few days after receipt of the injury. If seen

in the early stages, excision of the eyeball should be performed. If the inflammation is already fully established, atropine may be instilled and hot compresses applied. If the pain is intense and the eye is greatly inflamed, a scleral incision may be made between the tendons of the external and internal recti muscles and the pus evacuated. The cavity of the globe may be irrigated and packed with gauze. In view of the possible danger of purulent meningitis, enucleation of the eyeball during the violent stages of panophthalmitis is not advisable. Simple scleral incision affords perfect relief, and enucleation, evisceration, or implantation may be performed later.

Sympathetic inflammation does not usually occur until after the first month, and its treatment is not in place in a paper dealing briefly with the immediate treatment of penetrating wounds of the eyeball.

MODERN METHODS OF VACCINATION AND THEIR SCIENTIFIC BASIS.

In the London *Lancet* of December 21, 1901, COPEMAN writes an important paper on this subject, which is so interesting at the present time.

The treatment of the arm at the time of vaccination and subsequently during the progress of the case is another subject which has aroused considerable controversy, and concerning which much divergence of opinion would appear to exist. Thus in some quarters the initial cleansing of the arm is said to be objected to by the parents as a reflection on the care, or want of care, on their part as regards the condition of their children, but in general it is found that a little tactfulness in explaining the difference between ordinary and surgical cleanliness has sufficed to overcome the difficulty. In addition to this aspect of the case the friction employed in the process is of value in causing a slight capillary dilatation which undoubtedly contributes to the success of the operation. Water, soap and water, spirits of wine, or antiseptic solutions of greater or less potency containing boric or carbolic acids, lysol or perchloride of mercury, for instance, are employed by different operators for the purpose. Of these in all probability a warm solution of boric acid is the most generally useful, a stronger antiseptic such as corrosive sublimate, unless removed by the subsequent use of sterilized water or alcohol, being liable to exert a somewhat deleterious effect upon the lymph.

The method to be employed at the operation and during the maturation of the vesicles for the protection of the vaccinated area from extraneous infection has not been defined by the regulations, for the reason that it appeared probable that each man would best attain the desired end by the same methods that he would ordinarily employ in the treatment of any other case of minor surgical injury. As was to be expected, therefore, the means adopted for the protection of the vaccination wounds have been very various, and different trade firms have undoubtedly reaped an extensive harvest by the introduction and energetic advertisement of special dressings of one and another kind. In Paris, at the time of the writer's visit, a semitransparent material known as "taffetas Marinier," not unlike thin isinglass plaster, and which adheres to the skin when moistened with water, was, he found, invariably employed to protect the vaccinated area during the first few days following the operation, and a somewhat similar substance advertised by an English firm is at present utilized to a considerable extent in England. But during the second week of the process it is essential that some dressing of an absorbent nature should be employed, as it is during this period that oozing from the vesicles occasionally supervenes.

The methods employed for retaining the dressings in position are almost as numerous as the latter themselves. At the Government station, in Lamb's Conduit-street, a dressing composed of a couple layers of boric lint, kept in place by means of pieces of rubber strapping which do not entirely encircle the arm, is applied at the time of vaccination, and this is replaced by another exactly similar dressing when, a week later, the case returns for inspection of the result. But whatever be the nature of the dressing, the free use beneath it of a dusting powder of boric acid has a most beneficial effect in preventing any undue amount of inflammatory reaction.

Concerning the nature of the instrument best adapted for the purpose of vaccination the author makes a few remarks. Here again each operator will probably attain the greatest measure of success with that instrument to the use of which he has been accustomed. But, in speaking generally,

the less complicated it is the better. Again, it is desirable that it should be formed entirely of steel, so that it may be readily sterilized by boiling or by heating to redness in the flame of a spirit lamp, the first method being preferable as not tending to injure the temper of the metal. Possibly the best and certainly the simplest form of instrument is the ordinary triangular-headed surgical needle, which possesses the advantage that on account of its small cost a fresh one, if thought necessary, can be employed for every operation. It is curious to find, on turning to the old literature of smallpox inoculation, how all the processes of vaccination were originally copied from those which the inoculators had gradually elaborated. It was of course to these practitioners that Dr. Jenner was indebted for the model on which he framed his method of arm-to-arm vaccination, and in connection with his choice of an instrument the author was specially interested to find that Dr. Emanuel Timoni, in a paper on the practice of inoculation among the Turks, presented to the Royal Society in 1716 by Dr. Woodward, makes the following statement: "These punctures succeed best in the muscle of the arm. The needle is to be a three-edged surgeon's needle; it may likewise be performed with a lancet."

The manner of operating which affords the most generally successful results consists in blowing out the lymph from the capillary tube in which it is stored on to the surface of the skin at different points, the number and situation of which must correspond with those of the vesicles which it is desired to obtain. The skin, put slightly on the stretch, is then gently scarified, through each droplet of lymph, with the needle or instrument, first in one direction and then in another, more or less at right angles to the first, the drawing of blood being avoided as far as possible. In this way the corium or superficial layer of the skin is thoroughly opened up and in some measure removed, and thus the emulsion is brought into intimate relation with the cells of the true skin beneath. Operating in this fashion and employing lymph of normal potency, it is quite easy to obtain an area of vesiculation satisfying official requirements. Many operators reverse the procedure somewhat, first making their scarification and then rubbing on the lymph. But whether it be that some of the minute scratches are thus closed up, as the lymph is applied, or whatever else the reason, certain it is that the results obtained are usually by no means comparable with those following on the method of scarification through the beads of lymph previously dropped upon the skin.

The operation having been completed, it is well to avoid too great haste in applying the protective dressing, especially if this be of the nature of absorbent pad, or if it be impregnated with some powerful germicide, as in the case of sal-alembroth wool. Some little time necessarily elapses before complete absorption of the vaccine emulsion and the exuded lymph has taken place, and to insure the best results a little exercise of patience is essential. With the object of hastening this period of drying, the author devised some time ago a method of removing the glycerin from the lymph emulsion after such time as bacteriological tests showed that it had fulfilled its purpose of destroying extraneous microörganisms, and replacing it with an equal amount of an inert fluid of similar specific gravity. But the more rapid drying of the vaccinated area thus obtained appeared hardly to compensate for the extra trouble involved in the special preparation of the lymph.

When every care has been taken to protect the arm during the progress of the vaccination and to prevent the premature detachment of the crusts, the amount of permanent scarring of the skin which remains may be astonishingly slight. This is one of the results of modern methods of vaccination to which as yet attention has hardly been sufficiently directed, although in the future it is likely to prove a matter of considerable importance. There can be little doubt that the huge and deep scars which not infrequently resulted from the vaccination of former years were due to some extent to excessive destruction of skin tissue by microörganisms other than those specific to vaccinia. If this be so, then it becomes apparent that persistence of such large and deep scars, practically throughout life, does not necessarily afford evidence that any equivalent degree of immunity against the infection of smallpox is enjoyed by their possessor.

ADRENALIN.

The London *Lancet* of December 21, 1901, tells us that adrenalin, the active principle of the suprarenal glands, has been isolated in a pure form by Dr. Jokichi

Takamine, who has published an account of his work. This substance has the approximate composition represented by the empirical formula $C_{10}H_{15}No_3$, but its chemistry has not yet been completely worked out by its discoverer. It occurs in light, white, microscopic crystals, has a slightly bitter taste, and leaves a numb feeling on the tongue where it has been applied. In dry form it is perfectly stable. It is soluble with difficulty in cold water but more readily in hot water, forming a slightly alkaline solution. It is easily soluble in acids and in alkali hydroxides, forming salts; such solutions readily oxidize on exposure to the air.

The physiological properties of adrenalin have been practically tested on dogs by Dr. E. M. Houghton, of Detroit, who finds that a fraction of one drop of aqueous solution of adrenalin, or its salt, in the strength of 1 in 50,000, blanches the normal conjunctiva within one minute. It is a strong hemostatic. The intravenous injection of adrenalin produces a powerful action upon the muscular system in general, but especially upon the muscular walls of the blood-vessels and of the heart, resulting in an enormous rise of blood-pressure. The result of three intravenous injections of one cubic centimeter of the solution of adrenalin chloride, 1 in 100,000, into a dog weighing eight kilogrammes, raised the blood-pressure 30 millimeters of mercury. This and other experiments indicate that adrenalin is over 1000 times stronger than the fresh glands. The therapeutic applications are already numerous. Generally speaking, when locally applied it forms a powerful astringent and hemostatic; it may be used in various forms of inflammation, and it is also a cardiac stimulant. It is said to be non-irritating, non-poisonous, non-cumulative, and without injurious properties. As an antidote it has been used with good results in morphine and opium poisoning, also in circulatory failure, in the prevention of collapse in anesthesia, and in carrying out bloodless operations in the nose, eye, ear, and throat. It has also given good results in some cases of deafness, hay-fever, nasal hemorrhage, and in various forms of heart disease.

INVOLUNTARY MICTURITION IN CHILDREN.

G. F. Lydston states in the *Archives of Pediatrics* of January 15, 1902, that one of the first duties of the physician is to correct any condition of malassimilation or debility which may exist. Sources of local irritation having been excluded, the condition should be treated as a pure neurosis. One of the best remedies at our command is the daily injection of full doses of sulphate of strychnine in the lumbar region.

In cases of involuntary micturition dependent upon chorea the usual measures for the correction of that condition should be adopted—cold bathing, massage, cod-liver oil, arsenic, and antispasmodics come into play here. Such remedies as the bromides, valerian, asafetida, and camphor are of special service. A remedy which has proved of special service in the forms of enuresis due to hyperesthesia of the vesical neck is tincture of cantharides in minute doses. Where hyperacidity of urine exists this may be combined with acetate or citrate of potassium or lithium. The lithium salts are of special value where there is gouty or rheumatic diathesis. The salicylates also come into play here. Such tonics as mineral acids, quinine and iron, with a liberal dietary of fat, and perhaps the administration of cod-liver oil, are demanded in many cases in which malnutrition is a prominent factor. Ergot is very often useful. A very valuable remedy in purely neurotic cases, and especially in those accompanying chorea, is santonin in full doses, this independently of the existence of intestinal worms. Where those exist this remedy is of course a *sine qua non*. In cases of phosphaturia a diet of proteids with the administration of mineral acids has a much more limited range of value than authorities on therapeutics seem to believe. Like many other remedies this has been handed down year after year by various authorities on therapeutics, since Trosseau and Bretonneau, until it is considered by the majority of practitioners little short of specific. It is believed the value of this remedy has been greatly overrated. While it does act favorably, it is in many cases of only temporary benefit.

Where the involuntary micturition is due to the irritation of saccharine urine, as in diabetes mellitus, or the rapid entrance of urine of low specific gravity into the bladder, as in diabetes insipidus, the primary condition demands correction. The author here mentions an observation which he has made, to the effect that urine of extremely low specific gravity and consequent non-irritating character is often not so well tol-

erated by the bladder as is a more concentrated and consequently more irritating urine. The reason for this seems to be the fact that in cases of diabetes insipidus and allied conditions the urine is secreted so rapidly that the bladder does not have time to accommodate itself to its contents. The urine trickles into the viscus so fast that it is, so to speak, taken by surprise, and is consequently stimulated to contract. This phenomenon has been noticed by the author very frequently in patients whose urine was extremely diluted in consequence of the ingestion of large quantities of pure water, yet frequent scanty urination was produced.

In by far the majority of instances local treatment is required, and its neglect is the explanation of frequent failures in the management of this condition. The necessity for local treatment in cases of involuntary micturition due to an irritated condition of the genito-urinary tract is obvious; thus, an operation for stone, the application of silver to the vesical neck, or surgical intervention for the relief of diseased kidneys, may be necessary. The urethral sound is one of the most valuable measures for the treatment of a large proportion of cases of involuntary micturition in children. It acts in three ways: First, by blunting the sensibility of the nervous supply of the vesical neck, thus correcting hyperesthesia; secondly, by decreasing the congestion of the mucous membrane of the deep urethra—*i. e.*, the vesical neck; thirdly, in cases of a purely neurotic type it stimulates the relaxed sphincter vesicæ to contract, and, so to speak, exercises it. The resentment which the muscle offers to the entrance of the sound produces a stimulation of nutrition of the muscle, increases its bulk, and adds to its tonicity, thus enabling it to resist with more success the egress of urine. Many otherwise obstinate cases are cured very readily by systematic sounding. All sources of reflex irritation should be relieved; the prepuce, if phimosed and redundant, removed; and all adhesions separated. The meatus, if narrow, should be cut. Carunculæ of the urethra and preputio-clitoridal adhesions may demand attention in female children.

Next to the sound, the most efficacious method of treatment in the purely neurotic cases is the injection of strychnine beside the spinal column in the lumbar region. The dosage is of course to be in proportion to the age of the child, but as a single daily dose is given a larger quantity can be administered than where it is given internally three times daily. The injection should be made deeply into the substance of the erector spinæ muscle, and as close to the spinal column as possible. In several instances in the author's experience a cure has resulted from a short course of these injections. In one instance, the case of a girl twelve years of age, the daughter of a physician, cure resulted from the succession of three injections in the lumbar spine of one-fifteenth of a grain of sulphate of strychnine.

Where vesical catarrh is a factor in the case, and especially in cases where the urine is alkaline or neutral, urotropin is often of value in connection with the usual local measures for the correction of the condition.

PNEUMONIA: ITS TREATMENT AND ITS NATURE.

In the course of a discussion on the treatment of pneumonia which is reported in the *Glasgow Medical Journal* for February, 1902, McCall Anderson stated that he has no belief whatever in the antiphlogistic treatment (bleeding, blistering, purging, etc.), excepting for certain special reasons; and if one were to ask him what he considers the very best treatment for pneumonia, he would reply that it is feeding and nursing, and he has no hesitation in saying that if one gets a case of pneumonia in the early stage, and puts the patient under the care of two thoroughly experienced and trained nurses, one for the day and the other for the night time, very often no medicine of any kind is required.

In the treatment of pneumonia there is a great tendency to interfere unduly, and that arises, of course, partly from the fact that in a serious case the friends expect us to treat it energetically. And there is one point—it is of a negative kind of treatment—which he is inclined to insist upon, and it is this: the great importance of not fatiguing and exhausting and distressing the patient by making careful daily, or twice a day, physical examinations of the chest. It is really altogether unnecessary to do so, because one can generally tell quite certainly that a patient is suffering from an acute attack of croupous pneumonia without any examination of the chest at all. There is the rigor at the outset, the decubitus, the flushed cheeks, the herpetic eruption about

the lips, the high fever, the tenacious, rusty expectoration, the great perversion in the pulse-respiration ratio—a very important point—and on examination of the urine we will generally find that it is very deficient in chlorides, and often, if there is high fever, contains a little albumin. So when these symptoms, or most of them, are present, we can be absolutely certain of our diagnosis. By this Anderson does not mean that we are not to make any examination, but no unnecessary examination of the chest. We must not treat the patient as if he were laboring under a chronic disease. Then, as regards the minor forms of treatment, some of them do no good, while they are distressing to the patient. The speaker related an incident of which his father once told him, of a patient and friend whom he visited one day, and who said to him, "Weel, doctor, how are you?" "I am not at all well; I have a very bad cold and I put a mustard poultice on my chest, and it is very sore." "Weel, I'm very glad to hear it, for it will teach you doctors not to order mustard poultices right and left, as if they were nothing."

But if we are to interfere medicinally it must be for the purpose of dealing with some special symptom or complication. Now, for example, there are the two symptoms of severe pain and sleeplessness. If these are not attended to, it might go hard with the patient, and under such circumstances morphine subcutaneously may be used. The only thing that would make one hesitate in the use of morphine would be if the patient had one lung blocked up with pneumonia, while the other was the seat of collateral hyperemia and edema, and the bronchial tubes were choked up with mucus.

There is one point in reference to delirium, in these and other diseases, which must never be overlooked, namely, that in a large proportion of cases the delirium is simply one of the phenomena of the fever. If we put a thermometer into the patient's mouth, in many cases we will find that it registers a very high temperature, and if under these circumstances we resort to the use of antipyretic methods of treatment when the temperature is brought down, the patient often falls into a sound sleep, and on waking the delirium has disappeared. That is a point that should be borne in mind—that delirium is often due to the high fever. Then, as regards the fever itself, it is generally high, but if the case is running its normal course it is a disease of short duration, and therefore—in the case of a person who was previously in good health—it is not such a serious matter, and need not be unduly interfered with. Under these circumstances we need only resort to the milder methods of treatment, such as sponging the patient with vinegar and ice-water, giving him ice to suck, and, if he does not object to it, all his food thoroughly iced. But if there is hyperpyrexia, or if the disease is prolonged, although the fever may not be excessively high—for a prolonged febrile movement is just as dangerous as high temperature for a short time—something more must be done. For instance, we may apply ice-bags to the head, to the affected side of the chest, and in the axillæ, and if we do not succeed in that way in lowering the temperature, we must resort to the use of antipyretics, of which the safest is quinine in single doses of ten grains or more if necessary. And in the last resort there is nothing for it but the use of the cold bath. Undoubtedly a great many patients laboring under pneumonia are actually killed, burnt up, by the fever.

As regards the use of stimulants, the author does not put such great faith in them as others seem to do. He thinks that most cases of pneumonia—because it is an exhausting disease—are the better for a little stimulant, particularly in the advancing stages; and as regards their use and the amount to be given, we must be guided by the same principle as would guide us in the use of stimulants in connection with one of the specific fevers. In cases of heart failure, of course, we would have to stimulate the patient freely, and the two medicines which appear to be most useful under these circumstances are subcutaneous injections from time to time of five to seven minims of liquor strychninæ, or perhaps one-thirtieth of a grain of digitalin, or we may combine the two. If there is marked dyspnea and cyanosis, the administration of oxygen mixed with a considerable portion of atmospheric air should certainly be resorted to. The writer, however, does not agree with others in considering it in the light almost of a panacea, nor does he think that the results of oxygen treatment of pneumonia and similar diseases are, on the whole, very satisfactory.

And lastly, as regards the antipneumonic serum, it has not apparently, up to the present time, yielded favorable results; and

the speaker concluded with the remark that should he find a patient who resists the methods of treatment which he has endeavored shortly to lay before us, he should certainly be very hopeless as to the result.

THE USE OF STRYCHNINE.

Some time after the trial of Palmer, the Rugeley poisoner, strychnine came into general use as a therapeutic agent. The masterful description of its action by the Attorney-General, Sir A. Cockburn, made the alkaloid known throughout the land. As a therapeutic agent it has grown in favor until it has become the most used of all the tonic remedies. It finds a place in a large number of proprietary medicines—pills and mixtures. Its great and valuable properties are abused, both by the medical profession and the public generally. We in no way desire to depreciate its value as a simple bitter, or as a respiratory and cardiac tonic, but we do wish to draw the attention of the members of the medical profession to its abuse. We think that its prolonged use is fraught with evil. It is an excellent whip to a flagging heart, to be used at a crisis, but its continued use is harmful. Hare drew attention years ago to the rapid running pulse and great nervous irritation that follows from its too prolonged use in fevers. We are of opinion that its use in the treatment of delirium tremens, for which it has been strongly recommended, is not unattended with danger, particularly so when the patient is a female. Alcoholics can take very large doses of the alkaloid, but unless it is given in toxic doses it seems to produce none of its physiological effects. In full doses it, in such cases, not infrequently produces a veritable ataxia, without contractures, as in Don Gonzalez Alvarez's case, and it occasionally causes a distressing and painful trismus.—*Medical Press,* Feb. 12, 1902.

THE TREATMENT OF ECLAMPSIA BY THE METHOD OF PROF. W. STROGANOFF.

NEWELL details this method in the *Boston Medical and Surgical Journal* of February 20, 1902. He tells us that after a careful study of the pathology and symptomatology of eclampsia, Stroganoff formulated a theory of the disease for himself, and instituted a method of treatment to meet the indications which he considered as the essential features of the disease. His views on the nature of eclampsia may be briefly summarized as follows: Puerperal eclampsia is an acute infectious disease which runs an almost definitely self-limited course of a few hours' duration, seldom exceeding twenty-four and still more rarely forty-eight hours in length. In the great majority of the cases the principal source of danger to the patient lies in the convulsions, which exert a harmful action on the heart, the respiratory center, the kidneys, and the general condition of the patient. They are often the cause of apoplexy in the fetus, resulting in its death before delivery. Now, it must follow as a natural result that if the convulsions can be eliminated or lessened in severity, the malignant character of the disease will be done away with to a considerable degree, since the resisting power of the organism will probably suffice to nullify the effect of the infective agent when the strain induced by the convulsions is removed. This should, therefore, be the main object of treatment, since we are unable at present to remove the cause of the disease.

In accordance with these views which have just been stated Stroganoff instituted a method of treatment which was designed to accomplish the following results:

1. The prevention of the convulsions by lessening the irritability of the nervous system and by removing all external sources of irritation, especially those connected with the birth canal.

2. The strengthening of the vital processes by careful supervision of the cardiac and pulmonary circulations; by securing as large a quantity of oxygen as possible; and by prompt delivery, if, with these measures and with a proper diet, the convulsions do not cease.

The treatment is in brief the following: The administration of oxygen during the convulsions; the use of morphine and chloral to control the convulsions; the free use of cardiac stimulants when the heart action weakens; prompt delivery when the convulsions do not yield to treatment; a milk diet; and the avoidance of all methods of treatment which tend to depress the patient.

The administration of oxygen is recommended as the only treatment to be applied during the convulsive attacks. The use of chloroform and ether during the convulsions

he considers to be not only ineffective in stopping the convulsions, but also injurious to the patient. Ineffective because, since respiration is almost suppressed during the attacks, not enough of the anesthetic can be inspired to produce the desired result—that is, the suppression of the given convulsion; and injurious because the use of the anesthetic still further decreases the scanty supply of oxygen which the patient is able to obtain, and which is, on account of the asphyxia due to the interference with the respiration which accompanies each convulsion, the element which is most necessary for the welfare of the patient. The indications during each convulsive attack call for the free administration of oxygen, with precautions to prevent the patient from biting her tongue, and the removal of all weight from the thorax.

If the patient is under observation at the time of the first convulsion, morphine sulphate one-fourth grain is given hypodermically at once, and otherwise as soon as the physician reaches the case, to be repeated in cases of average severity at the end of an hour. In severe cases—that is, if another convulsion occurs within that interval—or if the patient is restless and unruly, the dose should be repeated earlier, while in mild cases, especially postpartum, the interval may be lengthened to two hours. In severe cases a third injection of morphine should be given after the same interval.

About two hours after the last dose of morphine, or earlier if the patient is restless, chloral hydrate is given (20 to 40 grains) by mouth if the patient can swallow, otherwise by rectum. Light narcosis is to be maintained for the next twenty-four hours by the repetition of the chloral at intervals of from six to ten hours without reference to the cessation of the convulsions. If the patient is restless or unconscious the narcosis should be continued for a second twenty-four hours. If at any time during this interval convulsions recur or threaten, the morphine should be repeated as at first, and the use of chloral should be continued.

Stroganoff believes that the size of the doses of morphine is of great importance, and should never exceed one-fourth grain at a single dose, as serious depressant effect may follow the exhibition of the larger doses (half grain) recommended by Veit.

If the convulsions do not yield within a reasonable time to the use of morphine and chloral, immediate delivery is indicated, as in sixty per cent of all cases in which the convulsions begin during labor they cease with or shortly after delivery. The method of operative delivery to be adopted should be that which will produce the least degree of shock, as in a patient suffering from the severe toxemia of eclampsia a degree of surgical shock which would be well borne under ordinary conditions may prove fatal.

The further treatment of eclampsia as recommended by Stroganoff may be summarized in a few words: All irritation of the patient, especially of the birth canal, is to be avoided as far as possible. The use of general anesthesia is advised whenever the patient is to be catheterized, a vaginal examination made, etc. A milk diet is to be insisted on. If the patient requires stimulation, the use of normal salt solution is advised as the most satisfactory method, although the administration of brandy and sulphuric ether is advocated for sudden emergencies.

In regard to the sweating treatment which is so generally employed in eclampsia, Stroganoff takes the opposite view from that which is usually held. He claims that the use of hot-air and hot-water baths has in many cases a distinctly harmful effect, acting not only to depress the overburdened heart still further, but also to increase the nervous irritability and thus favor the recurrence of the convulsions. These disadvantages more than counterbalance the gain to the patient which is due to the comparatively limited excretion of toxins which takes place through the skin. A warm bath to cleanse the skin has, on the other hand, no harmful effects, and in many cases produces a distinctly soothing effect on the patient.

TREATMENT OF TYPHOID FEVER.

In the course of an article on this subject in the *Yale Medical Journal* for February, 1902, Professor OSBOURNE reminds us that while alcohol has been used from time immemorial for typhoid fever, there are also many advocates for the non-alcoholic treatment of typhoid fever. What is the object in the use of alcohol? In the first place, it is a food in the sense that it furnishes something for the patient to burn, and, as we see, this high temperature causes all metabolism to be quickened and he must burn something. First, he burns his fat, then his

muscles, and then we begin to have not only wasting, but actual degeneration. Alcohol, then, it is believed will prevent some of this loss. Secondarily, it is believed that the reason it has received such backing in this disease is because of the secondary effect, which of course in continued doses is always present, viz., that of dilating the peripheral blood-vessels. This tends to increase the perspiration, and we have loss of heat, both from evaporation and radiation, and the temperature is kept lower. We also note a distinct tolerance for alcohol in this disease, perhaps because so much is quickly burned up. We find a very rapid heart is relieved and is slowed, and in normal conditions we find a slowed heart made rapid by alcohol.

Alcohol certainly tends, then, to reëstablish equilibrium of the circulation. If the pressure is too great it will dilate the blood-vessels in ordinary conditions and relieve the tension, and if the heart is very rapid and there is no condition of shock, it seems to also reëstablish an equilibrium and relieves the heart of its trouble. The rapid pulse of a typhoid case will become slow if the proper dose of alcohol is given. The indications for alcohol in typhoid fever are rapid heart, high fever, typhoid head symptoms—*i. e.*, low, muttering delirium, subsultus, carphologia, trembling tongue, and dry skin. A pulse of 110 in an adult is a pulse that is on the verge of becoming weak, and a pulse of 120 in an adult is a positive indication for stimulation in typhoid fever. Also a pulse below 100—that is, of low tension and perhaps dicrotic—demands alcohol. The dose and frequency depend entirely upon the results, coupled with the past history of the patient; an alcoholic patient or a patient used to his alcohol requiring, of course, more. Brandy and whiskey are the forms in which it is generally administered, beginning with teaspoonful doses every three hours, diluted with water, put into milk, given in effervescing water, in albumen water, or in a small milk punch, as seems to best suit the case. Beware of giving too much alcohol. Very many cases of typhoid fever have meningeal symptoms, which are practically delirium from alcohol. If, while giving alcohol and pushing it, the pulse becomes strong and bounding, the skin and tongue dry, the face flushed, and the breath gives off the odor, certainly if all or if any of these symptoms appear we are overdosing our patient. The character of the pulse, then, decides when we should begin giving alcohol, but patients with typhoid fever do better on a little alcohol ordinarily than without it. In conditions of collapse, we should remember that alcohol, while we give it, is not the treatment on which we rely, as we can easily cause too much vasomotor dilatation with large doses of it.

The writer has found that in certain cases he can do the same, so far as keeping the temperature down is concerned, by dilatation of the peripheral vessels, with small doses of nitroglycerin. In the first part of typhoid fever, perhaps the first two or two and one-half weeks, small doses, as one two-hundredth of a grain every six hours, seem to have very good results in lowering the temperature, relieving the pressure in the head, and preventing the necessity of much alcohol. Sometimes he gives this in a Da Costa tablet, which is a combination of 2 minims of tincture of digitalis, 2 minims of tincture of strophanthus, and 1-4 minim of tincture of belladonna, with 1-200 grain of nitroglycerin. If the pulse is weak, this makes a good combination.

At any time during the course of typhoid fever, though we do not expect it until the latter part of the third week, we may begin to have a weakened heart and depression, and especially when the temperature begins to fall is the time perhaps to increase the alcohol somewhat, but now is the time for strychnine. It is best to reserve the administration of strychnine until such a condition supervenes. Also during this period, occasionally or perhaps regularly, especially in the early part of the day, doses of black coffee are stimulant and decidedly good for the heart. The dose of strychnine depends, of course, on the indications—one-thirtieth of a grain tablet every six or eight hours is good full dosage. Every three hours is too frequent; and if the necessity is present for such doses of strychnine, it had better be used hypodermically in one-fortieth of a grain doses.

TREATMENT OF PAIN IN THE EAR.

In *Treatment* for January, 1902, YEARSLEY, in an exhaustive article on this topic, says that the treatment of pain resulting from acute otitis media, whether of the catarrhal or purulent type, must be both local and general. The treatment of both

types must be based upon the same principle. The methods may be divided into three groups—prophylactic, abortive, and operative. Of these the first need not be entered upon, as the author refers to cases of pain—that is, where the condition is already established, and therefore only considers the abortive and operative methods.

When an attack of acute middle-ear inflammation is established, prompt treatment is necessary. The matter of first importance, and one which should be secured at once, is absolute rest. The patient should be confined to his room, and if there is a likelihood of the case being of the suppurative type, he should be kept in bed. The ear must be protected from anything which is likely to increase the inflammation, and stimulating foods, alcoholic liquors, mental excitement, and physical exertion must be absolutely forbidden. A smart saline purge should be at once administered, and it will often be found useful to start with five grains of calomel, followed up in the usual manner with a Seidlitz powder.

Insomnia must be combated by means of an opiate, but the best method of procuring sleep is by allaying the pain. This can best be done by the application of heat or cold, or by the combination of the two already alluded to. As a general rule, heat is preferred by the patient. It may be employed dry by means of the hot-water bag, hot flannels, etc., or moist by instillation. In using hot instillations a temperature of 115° will suffice.

The continued influence of heat, however, keeps the ear in a condition of congestion which retards resolution and favors the continuance of the inflammation, whilst the application of cold (especially to the parts surrounding the ear) often rapidly lessens the inflammation. Hartmann, therefore, suggested the combined action of the two agents, and claimed much benefit therefrom. The region below the auricle is covered with cold compresses or an ice-bag, and warm fluids are instilled into the meatus or hot sponges inserted. The author always employs this method, and finds it most useful.

But the best method of all, and the one which he most frequently uses, is the application of leeches. From two to four or six, applied just in front of the tragus, will often cut short the pain and inflammation with rapidity. Their application should be followed by dry heat by means of hot flannel or wool.

Otologists are divided in their opinion as to the wisdom of inflation during acute inflammatory conditions of the middle ear. To use the Politzer air-douche when the symptoms are at their height is to undoubtedly aggravate the condition; but when the inflammation is subsiding, the air-douche may be carefully and gently used, the amount of pressure exerted being regulated and slight. Thus judiciously applied, it will be found that patients are more quickly restored to hearing, and that the ventilation and consequent proper drainage of the tympanum accelerates the resolution of the inflammatory process.

In the early stages of acute inflammation of the middle ear the process can be aborted by the careful use of the Eustachian catheter. The following is a case illustrating this: On last Christmas Day a colleague of the writer came to him suffering from acute catarrhal inflammation of the tympanum. He had been in great pain all night, and his membranum tympani was much injected and bulging considerably in its posterior half, so much so as to quite obscure the handle of the malleus. After carefully cleansing the nares, the Eustachian catheter was passed and greatly inflated. One hour later the bulging was considerably less, and from that time recovery was rapid.

In a certain number of cases the treatment described will be found sufficient to abort altogether the attack, especially if the case be one of the catarrhal type. But, unfortunately, a certain percentage will require further measures. It is exceedingly unwise to wait too long and to continue to employ abortive treatment when it makes no impression. If the symptoms continue unabated for twelve hours, or if, whilst they diminish under treatment during the day, they return with their former or with increased severity during the night, then it is imperative that something further should be done. The middle ear is in a condition of extreme tension and must be relieved, and this brings us to the operative treatment. This consists in making an incision into the membrana tympani, an operation which has been called "paracentesis," but which is better named simply "incision" or "myringotomy." By incising the drumhead much damage to the ear may be prevented, and since wounds in that membrane heal so

quickly, it is far better to incise it unnecessarily than not at all. If the symptoms do not abate under abortive treatment, the incision of the membrane is imperative, whether the condition be one of simple or purulent inflammation. Prompt operation can do no harm, whilst its neglect may mean acute mastoid complications or chronic trouble, with all its attendant worries and drawbacks. If, on inspection, the membrane can be seen to be bulging, there is no reason for delaying incision, and when the surgeon has any doubt as to the propriety of the proceeding, he will find it the best and wisest course to incise.

As regards the *modus operandi*, there is not much to be said. Many special instruments have been devised, but the best is a Graefe cataract knife, or a small sharp tenotome. This should be as sharp as possible, since the keener the edge the less the pain of incision.

The meatus should be rendered as antiseptic as possible by swabbing with perchloride or Lister's strong mixture. If possible the patient should have gas, as the pain, though momentary, is extreme. The head requires to be carefully steadied, and the incision should be made where there is the greatest amount of bulging, and under the best possible illumination. If the membrane be bulging uniformly, the cut should be made in the posterior inferior quadrant. It should be bold and free, a mere puncture being useless. After incision, all that is required is a dressing of antiseptic gauze. Politzerization as a means of blowing secretion or pus out of the opening should not be practiced, as by blowing microörganisms from the nasopharynx into the tympanum a simple case may be converted into a suppurative one; or, if the case be already purulent, inflation may drive pus into the attic or mastoid antrum. Nor is syringing or irrigation necessary, the gauze acting as an efficient drain. It is only when the contents of the tympanum are very tenacious that syringing is required.

THE USE OF TUBERCULIN IN EARLY DIAGNOSIS OF TUBERCULOSIS.

Editorially the *Medical News* of February 8, 1902, says: With regard to the use of tuberculin for diagnostic purposes, notwithstanding the favorable testimony of so conservative an authority as Dr. Trudeau, there is practical agreement that its use is unjustifiable. In well marked pulmonary tuberculosis it sometimes fails to give any reaction. When there is a history of syphilis the occurrence of a positive reaction has no pathognomonic significance. Dr. Otis, of Boston, who has had probably more experience with the agent than any one else in this country, opposes its use. Many physicians have not only been disappointed, but have even seen unexpected acuity of symptoms follow its use. Dr. Janeway is not sure but in one instance of acute generalized tuberculosis brought to his notice the acute symptoms may have resulted from tuberculin injection at the hands of a preceding medical attendant.

There is a striking uniformity of opinion among experts in diagnosis that the physical signs in the lungs must not be depended on absolutely for the ultimate decision as to the presence of incipient tuberculosis. All of them lay great stress on systemic symptoms that confirm or even suggest the diagnosis. Undue rapidity of pulse is considered very significant. A rise in temperature of more than a degree during the day, Potain's symptom of lowered blood-pressure, as shown by a special manometer designed for the purpose, or loss of weight for which no adequate cause can be found, are all considered possible signs of the presence of tubercle that become positively diagnostic if only suspicious symptoms of doubtful significance are found in the lungs.

Practically all the authorities are agreed, too, that it is better to be safe than to be sorry. On even the suspicion of the presence of a tuberculous process, patients should be warned of their danger. Colds that "hang on" in spite of ordinary treatment, and that show a certain absence of reactive vitality in the system, are to be treated as if they represented an initial stage of tuberculosis. The diet and appetite are to be regulated, an abundance of fresh air and sunlight counseled, and patients should be recommended to limit trying indoor occupations as much as possible, or to give up for a time exhausting physical labor. Of course, all this is for the well-to-do rather than the poor, but it represents the ideal of prophylaxis and therapeutics at a very early stage. In a word, the present idea among physicians is not to conceal the existence of tuberculosis from the patient as long as possible, as used to be done, but rather to warn

the patient very early in the disease, perhaps even in the pretuberculous stage, and so arouse the reactive vitality of the system before it has been impaired by serious pathological conditions.

ON THE TREATMENT OF THE ALCOHOLIC CIRRHOSES OF THE LIVER.

In the *Medical News* of February 8, 1902, CONVERSE asserts when ascites develops, it is all-important to differentiate between the atrophic and the hypertrophic forms of alcoholic cirrhosis. In the atrophic variety there is menace at once from the circulatory obstruction and from the glandular destruction. Hale White points out that the average duration of life after the appearance of ascites is eight weeks. Nevertheless, the treatment should be pursued on the same lines as previously stated, being supplemented by paracentesis and the judicious use of purgatives and diuretics, for the average does not speak for the individual case. In a recent thesis Willemin mentions sixteen cases of atrophic cirrhosis that were improved for periods varying from several months to several years.

Simply to mention the fact, Spillman has tried hepatic opotherapy in five cases of atrophic cirrhosis with encouraging results, for the treatment caused an increase in the amount of urine with parallel increase in urea, phosphoric acid, and an absence of albumin and urobilin. The same treatment had no influence on two cases of Hanot's biliary hypertrophic cirrhosis.

The general treatment is again the same in hypertrophic cirrhosis after the development of ascites. Its success, as H. Campbell Thomson indicates, will depend largely on the nature of the ascites. If the accumulation of fluid is due to the mechanical obstruction in the portal system, it indicates an advanced stage of cirrhosis, and frequent tappings will probably only precipitate the end. Such a fluid is pale, non-fibrinous, contains but little albumin and but few cells, and leaves a solid residue of about two per cent.

If the ascites be due mostly to the coexistence of a perihepatitis and chronic peritonitis, complete rest, together with the milk diet and removal of the fluid, may do much for the patient. This ascitic fluid is fibrinous, albuminous, rich in blood-cells, and contains a residue of about four per cent.

Our knowledge of the intimate causation of ascites is very meager, and such divisions are apt to be too schematic, for the same irritating sclerogenous cause is at work both on the portal system and on the finer vessels of the peritoneum. However this may be, over two-thirds of the reported cases of relative cure of cirrhosis with ascites are of the hypertrophic variety. Many of them read like the following case mentioned by Chauffard in an article on the "Clinical Forms of Cirrhosis," read at the Congress at Moscow:

"The patient, a chronic alcoholic of many years' standing, entered the hospital in January with a well marked hypertrophic cirrhosis and considerable ascites. From January to May he was tapped five times, 54 liters of fluid being removed. His general condition was bad, with marked emaciation. At the end of May the ascites ceased and did not reappear. The patient soon returned to ordinary diet, gained 13 kilos in weight, and became quite as strong and able as before his illness. For over a year after this and up to the time of writing the patient had remained quite well, although some alimentary glycosuria showed that the liver had not recovered its functional integrity."

The author has omitted symptomatic treatment and also the surgical side of the subject in the above considerations on the alcoholic cirrhoses. The first is, as Musser says, common property; the second is in itself a large subject.

THE TREATMENT OF CARCINOMATOUS GROWTHS BY CAUSTICS.

The *New York State Journal of Medicine* for February, 1902, has in it an article by ROBINSON on this theme. He asks the question, If caustics are employed what result can be obtained? Can the pathological tissue be destroyed, or removed, or changed in molecular constitution by the use of caustics; and if so, how do these results compare with those from excision?

These agents have been used for many years both by ethical members of the profession and by those who advertise. Certain caustics, judiciously chosen and properly used, are in the majority of cases of cutaneous cancer far superior to the knife as a surgical measure, both as regards the complete removal of the disease and the subsequent deformity from the operation. He

who sneers at the use of caustics in any and every case has either had no experience to amount to anything in that direction, or the cases that have come under his observation have not been treated upon correct principles.

All caustics act as injuring agents upon the tissues, and the amount of injurious action depends upon the caustic employed, the strength of the agent, the duration of its action, and the vulnerability of the tissues acted upon. No caustic should be employed that does not, directly or indirectly, quickly destroy the morbid tissue. Some caustics destroy by chemical action, others by killing the vitality of the tissues. As the former destroys normal and pathological tissues about equally, it follows that the caustic that acts upon the vitality of the tissues is preferable if the law be true that pathological tissue is destroyed more quickly than the normal by such agents.

We will see from this standpoint that with our present knowledge arsenous acid is the agent that usually gives the best results, enabling the disease to be removed with the slightest amount of deformity from the operation.

The caustic agents which have been most generally employed in this disease are nitrate of silver, nitric, sulphuric and hydrochloric acids, acid nitrate of mercury, arsenous acid, chloride of zinc, and caustic potash.

With these agents tissue can be destroyed to a greater or less extent, according to the agent employed. Some of them, such as nitrate of silver, act very slowly and very superficially, while others, such as caustic potash, act quickly and deeply. Mild escharotics should not be employed for the following reasons: With the nitrate of silver, for instance, only a portion of the tumor can be destroyed at one operation. As the tissue of the tumor area outside the necrosed part soon recovers from the injury a condition of reaction after injury occurs. There is more blood in the part and the lymph channels are enlarged; that is, the condition is favorable for increased proliferation of the epithelial cells and their further invasion of the tissues. The same reasoning holds true of all the mild caustics. Such treatment leaves the patient in a worse condition than if no treatment had been employed.

The three strong escharotics—chloride of zinc, caustic potash, and arsenous acid—differ in their action; but with any one of them all of the pathological tissues can be destroyed.

Chloride of zinc alone or in combination, as in Bougard's paste, for instance, has considerable diffusive power and great affinity for the water of the tissues, thus in a short time producing a dry necrosis of considerable extent. The greater part of the necrosed tissue can be removed with a scalpel the following day, a new application of the paste made, and the treatment continued until all the tissue has been acted upon and necrosed.

The disadvantage of this caustic is that it destroys normal tissue almost as quickly as the pathological, and on this account in tumors of considerable extent should only be used to destroy the main mass of the cancer, and its use be followed by other agents. It is very valuable in papillomatous epitheliomata, as its use is not accompanied by hemorrhage. In this form of cancer other agents should be employed.

Caustic potash has great diffusive power, has strong affinity for the water of the tissues, and produces a rapid necrosis with liquefaction of the tissues acted upon. The necrosed tissue is permeable, so the action of the caustic continues for some time after the application has been made. This prolonged action must be taken into consideration and utilized when treating a case. The rapid liquefaction of the tissue enables the operator to easily remove the softened necrosed mass and continue the use of the potash until he believes the required action is obtained for the complete removal of the disease. As a result of the use of caustic potash the tissues in the immediate neighborhood become very rapidly infiltrated with serum and the lymph channels become greatly dilated.

THE MANAGEMENT OF CEREBRAL HEMORRHAGE AND ITS ABORTIVE TREATMENT.

This important subject is discussed by BROWNING in the *New York Medical Journal* of February 15, 1902. He advocates immediate and absolute rest. When surroundings permit, the patient should be cared for at the place where seized. The author has repeatedly preëmpted a parlor, a dining-room, or a library. An embargo should be promptly placed on any interruption, noise, or disturbance. A set of cushions or a cot-

mattress can be secured almost anywhere, and the patient made somewhat comfortable, even on the floor. Transportation must, if possible, be postponed until we feel confident that it is permissible. We cannot guard too carefully against an immediate recurrence from the same vessel.

Should the case be of traumatic instead of idiopathic origin, much the same principles hold good. A moderate use of depressants is indicated after most injuries to the head. Although there is a greater chance here that it is of sinual or venous origin, we cannot determine this, and have to assume the usual arterial source.

A variety of other measures have been proposed for the acute condition. Some are at times in order, although not radical.

Purgatives may be needed, yet after all it is not well to have our patient disturbed by a bowel movement while the ruptured vessel is still bleeding. In this respect, also, present teaching should be modified to favor temporary immobilization. Calomel, as it is somewhat of an intestinal antiseptic, rather soothing to the stomach, and not hasty in action, can most safely be given.

Phlebotomy is more than replaced by the depressants. Position is of importance, viz., reclining to an extent that fully relaxes the muscles and yet does not depress the head, and for most persons a resting on the right side. When compelled to use quieting remedies, give bromide, or a coal-tar product, but never any opiate.

The use of gelatin internally, either subcutaneously or possibly by the mouth, seems to be attracting attention for its hemostatic qualities in all concealed hemorrhages. It acts simply by increasing the coagulability of the blood. For injection in the human being, 250 cubic centimeters of a one-per-cent solution in normal saline fluid is recommended. By the mouth one observer has given 200 cubic centimeters of a ten-per-cent solution daily, though there can hardly be any necessity for fixing such a narrow limit. Although a method of some promise for cerebral cases, it must be slower in action than that by depressants. Of course, there is no objection to essaying it as an adjuvant, if thought necessary. Should its use by the mouth be proved as efficient as when administered hypodermically, it will remain to be considered whether its continual consumption as a prophylactic in those cases where such is needed may not be in order.

Relief of Symptoms.—In the acute stage a number of symptoms often are sufficiently disturbing to need attention.

For the headache that so frequently attends the attack, antipyrin or its allies in small doses does well, is also rather soothing to the stomach, and is the safest agent where plain bromides fail. Much the same applies to the special restlessness that often threatens to harm as much as any muscular effort. Still, for this, the depressants—by controlling the main process—act best. Convulsions are rare, but may call for the administration of a few whiffs of chloroform; and catheterism may be necessary to empty the bladder.

In a recent case, a day after cessation of the hemorrhage, the patient accidentally injured the nose in a way to cause a free loss of blood. Speech immediately returned and considerable relief to the head was experienced, evidently due to the local depletion. This suggests a methodical trial of nasal scarification in suitable cases.

It is also understood that where nephritis, syphilis, or alcoholism is in play we must remedy that factor to the best of our ability.

Don'ts.—Don't give stimulants. Their use in such cases is most reprehensible. So often we see them freely given, notably the alcohol. The patient is prostrated, and the lay mind naturally turns to tonics and bracers—about the worst thing that can be done.

Don't resort to saline injections. During the acute stage a limitation of fluids is in order.

Don't use the depressant diaphoretics, such as ipecac, pilocarpine, or apomorphine. They tend to nauseate, an inclination otherwise too common, and, in the degree of attempts at vomiting, most undesirable.

Don't prescribe digitalis. It has repeatedly brought on another attack. It is a dangerous drug in any individual with a liability to apoplexy, and for this, if for no other reason, of questionable utility in nephritis. Where anything of the sort must be used, strophanthus is considered far safer.

Don't resort to opiates; they are likewise contraindicated.

Don't try nitrites, as their use in any form is here out of place.

Don't permit any muscular exertion on the patient's part; and moving by others should be limited as much as possible.

TREATMENT OF LOBAR PNEUMONIA.

NAMMACH utters very definite and distinct views as to the therapy of this affection in the *New York Medical Journal* of February 15, 1902. He believes that when hepatization has occurred, the heart is in for the fight of its life, and demands assistance. After twenty-one years of share in this fight, in hospital, private and official practice, and after trial of many vaunted remedies, the author's faith remains pinned to four things, to wit: strychnine, nitroglycerin, alcohol, and oxygen. The average case of moderate severity will do well with two of these, strychnine and nitroglycerin. His practice is to order 1-60 grain of each, in a teaspoonful of wine of pepsin of the National Formulary, every two hours, with milk six ounces and Apollinaris water two ounces, on the alternate hour, and plain cold water in the intervals, *ad libitum*. Strychnine is not only a stimulant to the heart, but also to the vasomotor system, and, with nitroglycerin, so regulates the peripheral circulation that, as has been said by one therapeutist, the sand is on the track, and the locomotive is not racked by ineffectual efforts to turn the driving wheels. When these remedies fail to hold the case, and the pulse goes up to 120, the first sound of the heart becomes weak, and the patient is in danger of passing into the state of low muttering delirium, with dry, brown, and fissured tongue and carphologia and subsultus tendinum; then whiskey is ordered—good old whiskey if it can be obtained. If a pneumonia patient needs whiskey at all, he needs it badly and he needs it often. Half-ounce doses, frequently repeated, will do more than larger quantities at longer intervals, as alcohol is eliminated rapidly. The author believes that alcohol in pneumonia has a triple use: It reduces the temperature by increasing heat loss by evaporation and radiation; it lessens heat production; and, most valuable of all, it supplies a fuel or food to be burned up instead ot the tissues. It has one drawback; alcohol tends to promote relaxation of the peripheral capillaries and to favor stagnation in them, with consequent interference with metabolism, and also with damming back of the blood upon the right heart. This risk must be accepted and met by the conjoint administration of vasomotor stimulants, like strychnine.

Regarding the use of oxygen in pneumonia, it must be confessed that no logical explanation can be given of its undoubted help in tiding desperate cases over the crisis. If it does no more than relieve the mind of a patient suffering from oxygen-hunger and encouraging him to continue the fight for life, its use is justifiable. It does not, of course, increase carbonic excretion, and will fail when the nerve centers cannot be sufficiently stimulated to avoid paralysis from this cause. It is well to have it in the sick-chamber, and to give small doses before the crisis, especially in cases of extensive lung involvement. In fact, recent observations seem to show that the pneumococci of Fränkel do not thrive in pure oxygen, and that the inhalation of the gas might prevent the spread of the disease to healthy parts, and might probably prove inimical to those cocci which had already gained a footing in the lungs.

Many good clinicians at the present day believe that we can sufficiently impregnate the blood with a substance inimical to the growth of the pneumococcus to forestall or cut short the local process in the lungs. The salicylates and creosotes have been used with this idea, and as usual with new methods of treatment, deductions have been drawn from a limited number of cases. One advocate of the use of carbonate of creosote affirms that he can at will arrest, and then reproduce, the subjective and objective symptoms of pneumonia by first giving and then withholding this drug. In the face of such therapeutic faith as this, how can we be drug nihilists? Other and more temperate writers, however, have made out a case for creosote which indicates it as deserving of trial. Digitalis is a remedy about which a good deal has been written in the treatment of pneumonia. Its use has always seemed to be based upon a misconception. It is believed to strengthen and slow the heart, but this effect in pneumonia would only be like unto that of spurring a willing horse against a dead wall, or, to use again the simile of H. A. Hare, of making more steam in a locomotive which is already racking itself upon slippery rails. Digitalis has, in addition, its own disadvantages of slow action, frequent gastric disturbances, slow elimination, and faintness, delirium, and mania, when given in the large doses recommended by Petresco and others. It should also be kept in mind that digitalis loses much of its regulating power over the heart in the presence of high fever.

A more recent measure, advocated for desperate cases of pneumonia, is the rectal or subcutaneous injection of normal salt solution, either used alone or preceded by venesection. By venesection we attempt to relieve the tendency to right-heart failure and to remove a certain amount of toxin-laden blood, and at the same time, by means of the salt solution, we try to increase the pulmonary circulation, accomplish dilution of the toxins that remain, and increase the oxygen-carrying capacity of the blood. Clement A. Penrose published the first work on this matter, and states that such infusions are most valuable. When lobar pneumonia is complicated by acute nephritis with threatening uremia, or by an acute exacerbation of a chronic nephritis (a type very frequently in Bellevue Hospital), venesection with saline infusion will accomplish much good. It is indicated in sthenic cases with forcibly acting heart. The author is in accord with D. E. Keefe, however, in his statement that without preliminary venesection it is never safe or justifiable to make any considerable addition to the circulating fluids at the acme of an acute disease like pneumonia.

Despite these recent advances in the treatment, pneumonia still continues to exact its quota of thirty per cent of deaths in hospital practice. The results in private practice are much better because better environment and facilities usually obtain. The longer one treats pneumonia, in either class of patients, the more one feels that every case is a law unto itself, differing according to time, place, sex, age, temperament, previous health, habits, and degree of infection. Patients may be divided into three groups: those whose infection is so mild that they require only good care and not drugs; cases so malignant and with toxemia so overwhelming that all measures will fail to cure them; and a third group, which is capable of cure under skilful, watchful therapy. The chief cause of death in uncomplicated cases is degeneration of the myocardium. The main factors in this degeneration are toxemia and mechanical obstruction from extent of lung involvement. Our objects of treatment are to eliminate poisoning and to sustain the heart and patient. Since the lungs and usually the kidneys are seriously crippled, our avenues of elimination are the bowels and skin. The familiar five and fifteen (calomel 5 grains, sodium bicarbonate 15 grains), followed by saline laxatives, and repeated judiciously during the progress of the case, will attend to the gastrointesinal system. The skin may be acted upon by water, cold, tepid, or hot, each according to its special indications and according to the stage of the disease. The peripheral circulation and resistance are kept up by the vasomotor stimulants—strychnine, alcohol, and nitroglycerin. In private practice, local treatment of the chest wall is expected by the patient and his relatives. It is cruel and unnecessary to disappoint them, but it is more cruel and more unnecessary to blister, poultice, or bake a patient's thorax, under the idea that an underlying pneumonic exudate is thereby influenced.

CARBONATE OF CREOSOTE IN PNEUMONIA.

M. H. THOMSON asserts his belief in the *Medical Record* of February, 1902, that this drug may exert a special effect upon the course of pneumonia, and that this is rendered probable by the peculiar course of the temperature after its administration, a fact which has been noted and well illustrated in many cases. Thus the disease terminated in his cases by lysis in twelve, and by crisis in only five. In a number of them a fall in the temperature of from one to three degrees occurred within twenty-four hours after beginning this drug, but the next day it would rise again, and so continue with a very irregular course for a number of days before it reached normal.

Carbonate of creosote, or creosotal, seems also to affect favorably that very undesirable complication in pneumonia, tympanites, which was pronounced in five patients. As the author uses this drug freely in the treatment of phthisis, he has been struck with its greater toleration by the stomach for prolonged periods than any other agent of this class, such as creosote itself or the guaiacol carbonate. In pneumonia he prefers to give it in 15-grain doses every two hours, night and day, or 180 grains in the twenty-four hours, which is about three times the amount prescribed by Dr. Weber.

No depressing effect has ever been noted by it on the circulation when so administered, nor need there be any fear entertained of its acting injuriously upon the kidneys, even if they were previously diseased. In one patient, a lady with general anasarca, hematuria, and abundant tubercle bacilli in

the urine, whom the writer saw in consultation three years ago, creosotal was taken continuously for nine months, after which the bacilli wholly disappeared from the urine, and she is now in good health. The author's usual formula for administering it is:

℞ Creosot. carbonat., ʒiv;
Glycerini, fʒj;
Aquæ menthæ, q. s. ad Oss.
M. Dose: Tablespoonful in water.

RINGWORM: A NOTE ON ITS TREATMENT.

JACKSON advises the following treatment for this state, first reminding us that ringworm, like the poor, we have always with us. No matter where a doctor's work may lie, whether in the city or in the country, if he is in general practice he will sooner or later be called upon to treat ringworm. There are few diseases of the skin easier to cure than ringworm of the so-called non-hairy parts of the body. Sulphur, iodine, salicylic acid, mercury—any of these in ointment or lotion will cure it. Indeed, most of them are not brought to the doctor, but cured by means of domestic remedies.

While it is easy to cure ringworm of the non-hairy parts, it is difficult to cure ringworm of the scalp and beard, especially the former. In many communities a case of ringworm of the scalp will float around from one doctor to another, and will persist in spite of their best endeavors. No conscientious physician will promise a speedy cure. If the patient is well in six months or a year, the doctor can congratulate himself upon his success.

To a certain extent, this is true of ringworm of the beard—barber's itch. While by no means as intractable as ringworm of the scalp, still six months is often necessary for a cure under most methods of treatment. The reason for the intractability of ringworm of the scalp and beard is that the fungus grows down into the hair follicles, and it is very difficult to make our well recognized antiparasitics penetrate to the seat of the trouble without damaging the skin.

Jackson strongly endorses a remedy that has been used for some years with excellent effect. In looking for an excipient that would penetrate easily and be bland, goose grease occurred to him as being just what was wanted. Many remember how they were rubbed with goose grease for a cold, in the belief that "it would loosen up the phlegm." The author found it better than he had hoped for. If a drachm or more of the crystals of iodine is added to an ounce of goose grease, one will have a most effective remedy for ringworm.

At the Vanderbilt Clinic, New York City, where they have many cases of ringworm, this preparation has been used extensively for two or three years, almost exclusively after the first few months, when it was found to be more efficacious than other remedies. It is to be applied twice a day until it produces reaction, as shown by a little swelling of the patch; then once a day will be sufficient. In two or three weeks the hair falls out of the patch, and it becomes bald, like a patch of alopecia areata. After a time the hair grows again, and the patch is well. The first applications are apt to be a little painful for a few moments, but after that even little children do not complain of pain. No epilation is necessary.

When used on the bearded portions of the face, the applications are more painful than when the scalp is the part treated. If much reaction with swelling is caused, the use of the remedy can be suspended for a few days, and a salicylated oil of three-per-cent strength can be used. As soon as the reaction subsides, the remedy should be used again. The result in this form of ringworm is remarkable. Recently the writer asked Dr. Dade, who has charge of one of the classes for men at the Vanderbilt Clinic, how long it took to cure barber's itch with the preparation. He said just three weeks, as he had noted in a number of cases. This coincides with the results the author obtained in private practice.

Just one word of caution is useful, namely: the physician must be sure that he obtains the genuine goose grease. We are told by those who should know that the goose grease dispensed by many druggists has never seen a goose, but is manufactured of several fats which, like goose grease, melt at a low temperature. There are some good samples on the market. The finest variety is expensive, as it is made from the fat of uncooked geese.

NOTE ON ENEMA RASHES.

CHARLES BOLTON states in the *Clinical Journal* of January 1, 1902, that the fact that the administration of enemas is frequently followed by rashes has for a long

time been recognized, and a very generally accepted explanation of their occurrence is that they are of toxic origin, the water of the enema dissolving certain substances from the feces, which are absorbed by the intestinal mucous membrane.

In a general hospital these rashes are of especial importance on account of their diagnosis from certain other rashes, with which they may be confounded, as: (1) Infectious diseases—scarlet fever, German measles; (2) drug rashes—mercury, belladonna, boracic acid; (3) septic rashes; (4) serum rashes—diphtheria antitoxin, antistreptococcic serum. It is therefore of great advantage to be acquainted with any facts which may throw light upon their prevention.

Having been informed by a nurse that in the hospital where she was trained soft soap was used for making the enemas, and that enema rashes were never seen, the writer determined to put this suggestion to the test, thinking that the kind of soap used might influence the occurrence of enema rashes, which might possibly be of the nature of drug rashes.

In January, 1901, soft soap was ordered to be used for making the enemas in half the medical and surgical wards of the hospital, and hard yellow soap in the remaining half of the wards. This order continued in force for six months.

During this period a total of 903 enemas was given to 500 patients; of these 407 soft soap enemas being given to 234 patients, and 496 hard soap enemas being given to 266 patients. In the latter series seventeen rashes resulted, but in the former series not a single rash was found. Enemas of pure water were not used, as it was considered that if soft soap enemas did not cause a rash, neither would water alone.

Three hundred of the patients received only one enema each, the remaining 200 having from two to six each, and a few of the more chronic patients from twelve to fourteen each.

Of the seventeen rashes never more than one occurred in the same person, and when more than one enema was given the rash followed the first, second, third, or fourth, but not the later ones. In one case, after a patient had received several soft soap enemas the mistake of giving him a hard soap enema was made, and a rash resulted. Calculating from the number of hard soap enemas employed, the percentage of rashes is about 3½. If the percentage of rashes be calculated from the number of patients who received these enemas, it amounts to about 6. These percentages, of course, are of relatively little value on account of the extremely limited nature of this investigation.

The medical and surgical diseases from which the patients were suffering had apparently no influence on the rashes, and the same remark may be made concerning the aperient employed. This was usually given before the administration of the enema, and consisted either of calomel, castor oil, or house medicine.

All the rashes appeared on the day following the injection, and their duration was from one to three days. They consisted in each case of fine, thickly sown papules, which either gave rise to a coarsely punctate appearance, or fused together into well defined patches, mixed with areas of simple erythema. In one case urticarial wheals were present. In some cases the whole body was more or less uniformly covered; in others the rash was chiefly apparent on the buttocks and extensive surfaces of the limbs, or on the trunk, especially at the sides.

It is not the object of this article to enter into an accurate description of enema rashes, or to discuss their diagnosis, but simply to point out the fact that no rashes whatever were apparent after the use of enemas made with soft soap. If the small number of cases mentioned in this paper does not justify the absolute assertion that soft soap enemas are not followed by rashes, it undoubtedly shows that these rashes are less frequent when soft soap instead of hard is employed for the manufacture of injections.

HERNIA EPIGASTRICA AND FATTY TUMORS.

An understanding of the anatomical and clinical features of epigastric herniæ and fatty tumors in this vicinity, says LETHROP (*Medical and Surgical Reports of the Boston City Hospital,* 1901), is of great importance in medical clinics, particularly in reference to diseases referred to the abdominal viscera. Many of the most troublesome cases of such hernia appear in medical clinics, and the symptoms are referred to the gastrointestinal tract. They may appear at a time when objective signs are few and easily overlooked unless particular examination is made.

Fatty tumors in this area are comparatively common, and most of them cause no disturbance whatever. As a rule they are discovered by accident, but occasionally the patient is aware of their presence when not too small. It sometimes happens, on the other hand, that these small fatty tumors are the source of more or less disturbance, occasionally causing severe symptoms. These symptoms do not differ in any respect from those caused by the smaller epigastric herniæ.

In epigastric herniæ it is very common for the herniæ to be present without causing any subjective symptoms whatever, notwithstanding the size of the tumor present, as demonstrated by many cases. The patient may be aware of the presence of such tumor, or it may be discovered in a routine examination.

These tumors are small as a rule, and commonly are not larger than an English walnut. At times they may have a diameter of 4 to 7 centimeters, while Mongie reports a case where the tumor was the size of the head of a fetus at term and occupied the whole epigastric area. This is a most unusual case. These tumors are always lobulated, but this fact is difficult to determine by palpation. There is almost always some impulse on cough.

If one is on the lookout for these cases in the course of an examination, they will usually be discovered. This condition should be thought of in all cases where the symptoms, whether subjective or objective, are referred to the stomach or intestines, or to a tumor of any sort in the epigastrium. Suffice it at this time to mention merely the conditions which might arise for differential diagnosis whenever symptoms are referred to this region, namely: all diseases of the stomach, pain referred to the epigastrium and vicinity as suggesting, furthermore, biliary calculus, inflammation of the gall-bladder, renal calculus, ulcers of the duodenum, diseases of the pancreas. Tumors in this vicinity should suggest fatty tumors limited to the subcutaneous tissue, and tumors in the vicinity of the umbilicus, such as gumma, carcinoma, sarcoma, cysts of urachus, hydatid cysts, dermoid cysts, and fibroma associated with the terminations of nerves. Caries of the lower end of the sternum or intercostal cartilages may be attended by small pus collections which resemble these herniæ.

When a fatty tumor or epigastric hernia has become well established, it will not disappear spontaneously. It may never cause any trouble, or it may give rise to symptoms at any time. The discomfort may be moderate or severe, irrespective of objective symptoms. One of the dissected specimens showed that the sac had become shut off at the plane of the peritoneal surface of the abdominal wall and a fatty tumor remained, which contained the obliterated sac. A fatty tumor, or hernia, may remain undiscovered and continue to cause discomfort. Such patients are treated for some disease of the stomach. In severe cases, conditions due to malnutrition may follow. In rare instances the patient becomes a hopeless invalid.

Treatment is not indicated, if the hernia causes no trouble, for it may never be the source of any annoyance. If symptoms are present, operation offers the only means of certain relief, and this measure should be suggested, provided there are no complications which would contraindicate surgical intervention. Trusses and swathes do not retain the herniæ satisfactorily after reduction, and such treatment only aggravates the condition where the tumor is irreducible. In extreme cases of local pain without objective signs where a hernia is suspected, an exploratory operation is justified. It is very important to free the omentum from all adhesions. As a rule, operative treatment brings early relief with a minimum of risk. Recurrence is unusual. The general principles made use of in the relief of umbilical hernia are of value in the treatment of these cases.

VALUE OF TAMPONADING THE ABDOMINAL CAVITY WITH AIR FOR THE RELIEF OF DANGEROUS INTESTINAL BLEEDING.

KELLING (*Münchener Medicinische Wochenschrift*, Nos. 38 and 39, 1901; abstracted in *Centralblatt für Chirurgie*, No. 48, 1901), as the result of experiments on dogs, found that the blood-pressure in the stomach corresponded to that of a tube containing 50 millimeters of mercury. From this he concluded that a similar amount of pressure would stop hemorrhage, provided that this amount of compression could be borne. This was accomplished by filling the abdominal cavity with air, which apparently had no

deleterious effect. Examination of the abdomen showed that, as a result of the air-pressure, the organs became anemic, and in the case of a wound of the surface of one of the organs there was practically no hemorrhage. When the wound in the organ was made before the air was introduced, there was free hemorrhage, which ceased very soon after the pressure was made. The author holds that with a proper technique there is no danger; the air can be introduced through a trocar, and if care be taken there should be but slight emphysema of the abdominal wall. However, experience has shown that this method of treatment has a deleterious effect upon the heart and lungs, so it should not be used in those cases which are complicated by affections of these organs. In no animal did injury result to the intestines through its use. The air should be carefully filtered through sterilized cotton before its introduction. The author states that he has not yet had an opportunity to test this method on human beings, but experimentally it has proved successful.

EFFECT ON ANIMALS OF LIGATURE OF THE SPLENIC VESSELS.

BALACESCU *(Münchener Med. Woch.,* No. 35, 1901; abstracted in *Centralblatt für Chir.,* No. 48, 1901) reports the following results of his experiments on animals:

The ligature of the entire vascular pedicle of the spleen, including also the gastric ligament, causes gangrene of that organ and usually results in death. In those cases in which the animals were able to withstand the toxemia resulting from the absorption of the gangrenous spleen, that organ soon became wholly atrophied; in eight days the spleen was only the size of a small knot. The ligature of either the artery or the vein was not followed by fatal results; a collateral circulation was soon established and fully replaced the impaired blood-supply, although some slight atrophy of the spleen followed. Ligature of the efferent veins caused a hyperplasia of the interstitial tissue, and the spleen so treated soon presented the typical appearance of atrophic cirrhosis. In these cases the normal functions of the spleen rapidly disappear, and finally the intestinal microörganisms force their way into that organ from the blood-vessels.

OPERATIVE TREATMENT OF TRAUMATIC INTRACRANIAL LESIONS.

In a paper upon this subject, appearing in the *New York Medical Journal* of January 11, 1902, PHELPS advocates not only the elevation of depressed bone, even when no symptoms of intracranial injury are discernible, a teaching generally accepted by the profession, but urges that when there exists a rational suspicion of the presence of a simple fracture, as in the case of a hematoma with a history of considerable violence inflicted upon the head, with or without concurrent symptoms of intracranial lesion, an exploratory incision should be made. This because of the absolute safety of such a procedure, since, should the operation prove unnecessary, primary union should always be obtained. Such a condition as depression of even the outer table justifies an exploratory craniotomy, though a very fine fissure in the absence of head symptoms would not indicate this want of interference.

EXTIRPATION OF THE LYMPHATIC GLANDS IN THE TREATMENT OF CANCER OF THE LOWER LIP.

STEIDA *(Centralblatt für Chirurgie,* Sept. 14, 1901), in extirpation of the lymphatic glands in cancer of the lip, commends an incision running parallel to the lower border of the under jaw, beginning at one angle and ending at the other. The skin, superficial fascia, and platysma are turned back, as far as the hyoid bone. If needful, this single flap can be split to provide access to all parts of the floor of the mouth.

DIAGNOSIS AND TREATMENT OF TUBERCULOUS PERITONITIS.

The diagnosis of tuberculosis of the peritoneum in children, says EISENDRATH *(Annals of Surgery,* December, 1901), is based upon the abdominal symptoms, such as distention, pain, and disturbed bowel action, the presence of fluid, and loss of weight. There is almost always a febrile rise of temperature of an irregular type. If the ascites is sacculated instead of diffuse, the diagnosis of tuberculosis of the peritoneum is even more likely. Cirrhosis of the liver is rare before the age of nine years, and if it is present, we usually have the history of syphilis and more or less jaundice. If

there is no ascites present, we must make the diagnosis on the presence of the irregular tumors. A chronic abscess in children, opening at the umbilicus, is always suspicious. The family history aids somewhat, but cannot always be relied upon. In adults, when there is no exudate present, diagnosis can often be easily made from the presence of the omental tumor and of the irregular nodular tumors. The latter are usually multiple, and must at times be differentiated from a multiple carcinoma. The transverse omental tumor must be differentiated from a gastric carcinoma. Kelly says that tuberculosis must be borne in mind in all cases of pelvic inflammatory disease, with masses posterior and lateral to the uterus, in which there is marked tenderness on pressure in the vagina or over the abdomen. He gives the following as the important differential points to distinguish an encapsulated tuberculosis of the peritoneum from an ovarian cyst or a fibrocystic tumor of the uterus: Rapid growth of the effusion; coincident pleurisy; a greater degree of gastrointestinal disturbance than in ovarian cyst; and at the edges of the tumor, especially if the fluid has been removed by tapping, one feels irregular, hard masses.

By bimanual examination through the rectum and abdomen, the cervix being drawn down, a fibrocystic tumor can be felt to be connected with the cervix; an ovarian cyst can be recognized by its pedicle. Occasionally tubercle bacilli or tubercles may be found in the discharge or in the curettings. When the ascites is free, we must distinguish it from the ascites due to cirrhosis of the liver, in which the history obtained of a previous alcoholism and the examination of the character of fluid are the most valuable symptoms; although it must be borne in mind that the combination of tuberculosis of the peritoneum and cirrhosis of the liver is not infrequent. It is almost impossible to differentiate the simple non-tubercular from the tubercular peritonitis. When the family history is good, and there are no signs of tuberculosis elsewhere, no tenderness, and an excessive amount of fluid, the chances are that the case is one of simple peritonitis.

FENGER notes that Borchgrevink, in his excellent paper, has now brought the subject of tuberculosis of the peritoneum back to a rational basis by most careful and scientific observation of two almost equal series of cases of peritoneal tuberculosis, one of which was treated by laparotomy and the other without operation. He has observed twenty-two cases treated by laparotomy, and eighteen cases treated without laparotomy. In addition to this, he has made a number of observations on so-called simple peritonitis, which he almost always was able to demonstrate to be tubercular.

Of these twenty-two cases of laparotomy, eleven patients had fever, and in the other eleven it was absent; of these latter, ten lived and one died. Of the eleven with fever, eight died and three only were cured.

The forms of peritoneal tuberculosis without fever or with only slight fever usually run a favorable course, and laparotomy is unnecessary.

In progressive tuberculosis, or the ulcerative form, most of the patients die from the disease sooner or later, and therefore laparotomy has no influence on them. In the eleven cases reported with fever, laparotomy undoubtedly did harm in nine, and it is not proved that the operation was responsible for or aided in the improvement in the other two cases.

In general, Borchgrevink concludes, after careful observation of the patients operated on and of their condition before and after laparotomy, that if the operation did any good it was, to say the least, doubtful.

His conclusions are as follows:

That the laparotomy, in strong, well nourished patients in whom the fever is absent, is well tolerated.

Laparotomy, however, in patients with fever, when the tuberculosis has a progressive character, must diminish what slight power of resistance such a patient has remaining. This power of resistance must yield, and death follow, or it may, by concurrence of fortunate circumstances, rebound, and the patient recover in spite of the operation.

That form of peritoneal tuberculosis which exists without fever, or with only slight fever, runs in itself a favorable course. In such cases laparotomy is unnecessary. In progressive tuberculosis the operation is dangerous and should be abandoned.

Of the twenty-two cases which Borchgrevink reports, eight were light, six moderately severe, and eight severe. Fourteen of the patients, or 63.6 per cent, recovered, and eight patients, or 36.4 per cent, died.

In seventeen cases conservative treatment was employed. Of these, fourteen, or 82.3 per cent, recovered and were still well after two or three years, or were clinically cured and remained well for two or three years. Of the three patients who died, the death was due in one case to tubercular peritonitis, in a second to intestinal tuberculosis after six months, and in a third to measles after five months.

The question of the disappearance of fluid exudate after puncture as compared with the result after laparotomy shows seven negative results out of fifteen laparotomies, and fifteen negative results out of nineteen punctures. But in eleven of the latter the exudate was absorbed spontaneously later on.

The advantage of laparotomy over puncture, as regards its effect on the exudate, is probably more apparent than real. It seems likely that the termination of the progress of the tuberculous process is the main factor in the causation of improvement, and in one or other of these conditions the method of evacuation of the exudate is immaterial.

The frightfully disappointing results of the energetic surgical treatment of peritoneal tuberculosis—curetting, excision of tuberculous tumors in the omentum, adhesions, and mesenteric glands—must teach us that nature cures tuberculosis of the peritoneum better than the surgeon.

As to whether there are any cases of tuberculous peritonitis for which laparotomy is the only means of cure, or in which laparotomy is the best method of treatment, Borchgrevink does not hesitate to say that even the serous tuberculous peritonitis is a territory which surgery must hand back to the internal-medicine clinic with thanks for the splendid opportunity which a misunderstanding gave to the profession, by means of laparotomy, to study tuberculosis in one of the large cavities of the body.

GOLD WIRE IN THE CURE OF HERNIA.

FRANCISCO *(Centralblatt für Chirurgie,* Sept. 7, 1901) has already called attention to the admirable results he has obtained in the radical cure of 50 hernias by Tansini's method of employing a wire mesh. There was union by first intention in all these cases, and the patients were gotten out in two weeks. The wire remains in the wound and forms a bulwark against the reappearance of the hernia. Francisco has now 120 cases in all to report, and notes that the results have been equally good in all.

Since, when a foreign body, such as gold wire, in considerable quantity is left in a wound, absolute asepsis is essential, and since it has been shown that neither by careful cleansing of the hands nor by the use of gloves can this be accomplished, Francisco has devised retractors so designed that the operation can be completed without either the surgeon or his assistant directly touching the raw surface. There is also a spatula employed for depressing the deeper tissues.

The Tansini operation is much like that of Bassini, except that there is left in the wound a network of gold wire, which not only approximates Poupart's ligament in the internal oblique and transversalis muscles, but is woven into a sort of network which remains in place and offers a mechanical resistance to the yielding of the abdomen at this point.

MUSCULAR ATROPHY OF THE PERONEAL TYPE.

Three cases of the peroneal type of muscular atrophy (Charcot-Marie-Tooth-Hoffman), reported by WARRINGTON *(Lancet,* Dec. 7, 1901), occurred in a woman fifty-six years of age, healthy looking; in a son thirty-one years old; and in another son twenty years old.

The cases conformed fairly well to the classical descriptions of Tooth and of Charcot and Marie. They presented the hereditary form of progressive muscular atrophy in early life, beginning in the lower extremities, and producing a paralytic club-foot, then invading the hands and giving rise to a varying degree of the *main en griffe.* Such a combination, when present in early life, is almost characteristic of the disease. Knee-jerks are usually absent or feeble, and fibrillar tremors are present in the majority of cases. Sensation is generally normal. Vasomotor disturbances are shown by coldness and blueness of the limbs, and often by an increase in the secretion of sweat.

The electrical reactions are peculiar and of great diagnostic value. A true reaction of degeneration may be present in the atrophied muscles, or an entire absence of excitability to either the induced or constant current. Further, there is the important

fact that even those muscles which are not atrophied and in which there is a full amount of power can only be stimulated with the greatest difficulty. This was present in two of the three cases. It is possible that some peculiarity in the skin may *partly* account for this phenomenon. It was observed that the patients were insensitive in a remarkable degree to the faradic current, a fact which has also been noticed by others; and further, that a higher voltage was necessary in order to get a current of a given milliampere strength to pass through the body than is necessary in a normal individual. Whatever the explanation, this symptom must rank as one of the characteristics of the disease.

Jones treated the youngest patient, who complained of considerable pain in both feet, more especially the left. They were both rigid in every direction, in contrast to the ordinary paralytic type, voluntary movements of the toes being very limited. The right foot, which presented the less severe symptoms, required only division of the tendo Achillis and tibialis posticus, followed by an energetic application of a club-foot wrench, massage, and exercise. The right foot, in addition to the equino-varus, exhibited hyperextension of the toes and pes cavus. The tendo Achillis, tibialis posticus, plantar fascia, and deep ligaments were divided and an incision made across the dorsal aspect of the foot opposite the heads of the first phalanges of the toes. An interesting condition was found, all the phalanges being dislocated upward and backward. The heads of the first phalanges were removed, and the foot by these measures restored into normal shape. The patient made an excellent recovery and has walked long distances. Sachs has recorded similar success from operative treatment in these cases.

GENITAL TUBERCULOSIS.

GOROVITZ *(Revue de Chirurgie,* No. 10, 1901) finds that genital tuberculosis is much more frequent in women than is generally believed. By means of histological and bacteriological examinations, and by inoculations, many cases are diagnosed that were formerly overlooked. This tuberculosis is often secondary, but may be primitive, and early diagnosis is of extreme importance. Examination of the secretions, and of the fragments removed by the curette, is of extreme importance in establishing a timely diagnosis of tuberculous endometritis. It is well recognized that this endometritis is nearly always consecutive to a tuberculous tubal involvement. Clinical observation shows that this tubal tuberculosis provokes a more or less marked reaction of the peritoneum, engendering a peritonitis with incident effusion, called by Cruveilhier "the ascites of young girls." When a laparotomy is performed upon a woman for the relief of tuberculous peritonitis, the adnexa should also be examined. Often it will be found that they were the starting-point of the infection, and that their removal will be essential to a cure. This removal should be accomplished through an abdominal incision, since thus the infected peritoneum is beneficially affected. The success obtained by Bouilly, namely, twelve operations, all successful, the cure persisting in some cases for years, justifies his insistence on radical treatment.

Genital tuberculosis may appear as an associated or as a descended infection, the latter being more frequent. Clinical experience shows the possibility of infection in coitus. The presence of bacilli in the sperm of those suffering from phthisis explains the possibility of this mode of contagion. Experimental research has shown that tubercle bacilli placed without traumatism upon the mucous surface of the genital apparatus are able to multiply and produce the characteristic lesions of tuberculosis.

TREATMENT OF CORNS.

Any corn, if appropriate measures be adopted, according to FREELAND *(Edinburgh Medical Journal,* December, 1901), may be speedily and permanently cured without any risk of recurrence.

The treatment followed by Freeland is of three kinds—preventive, palliative, and curative.

The preventive treatment lies, of course, in adopting such measures as will secure freedom from pressure and friction for the parts most liable to corns. To this end a well-fitting shoe is essential. The shoes should be of well-seasoned leather, soft and elastic, and should be cut to a proper model.

The palliative treatment is generally carried out with chemical substances. The best method, that of Unna, is briefly as follows: A ring of glycerin jelly is painted round the circumference of the corn, to form a raised

rampart. A piece of salicylic plaster mull is then cut to the size and shape of the central depression, and applied to the surface of the corn. This is then covered with a layer of glycerin jelly, and before it sets a pad of cotton-wool is applied to the surface. This process is repeated as often as is necessary, until the horny layer separates and is cast off.

If the point of a sharp, thin-bladed knife be introduced at the groove which runs round the margin of the corn, and be made to penetrate toward its central axis, by the exercise of a little manual dexterity the horny part of the corn can be easily made to separate from the parts beneath. This method is much in favor with chiropodists. A corn that has been partly extracted by this method has been no more extracted by the roots than a shrub has been rooted up by breaking the main stem short off just below the surface of the ground.

Any method of treatment to be curative must secure the removal of the entire corn together with the underlying bursa. It is mainly in connection with the latter structure that complications, which alone make a corn a matter of serious import, are likely to arise. Freeland confidently advises the full and complete excision of corns, on the basis of his experience in upwards of sixty cases.

Every precaution having been taken to render the operation aseptic, a spot is selected for the injection of the anesthetic solution. The skin is rendered insensitive with ethyl chloride, and five minims of a four-per-cent solution of eucaine is injected into the subcutaneous tissue beneath the corn. After a wait of a few minutes, the superficial parts at the site of the incision are rendered insensitive with ethyl chloride. Anesthesia is now complete.

Two hemi-elliptical incisions meeting at their extremities are made through the skin around the circumference of the growth, care being taken that they penetrate well into the subcutaneous tissue. Seizing the parts included in the incision with a pair of dissecting forceps, a wedge-shaped piece of tissue—including the corn, a layer of skin and subcutaneous tissue, and the bursa if present—is dissected out. The oozing is pretty free, and it is sometimes necessary to torsion a small vessel; but the hemorrhage is never severe. The edges of the wound are brought together by one or two fine sutures; an antiseptic dressing is applied, and the wound is left to heal—primary union in a few days being the rule. The rapidity of the healing is often phenomenal. There is produced a scar tissue at the site of the corn, but this leads to no untoward results.

SURGICAL TREATMENT OF FACIAL NEURALGIA.

CHIPAULT (*Centralblatt für Chirurgie*, Sept. 14, 1901) notes that of twenty-eight cases operated upon by him, twenty-one belonged to the severest type. He believes that the surgical treatment should not be postponed too long, since, as a consequence of persistent peripheral irritation, irremediable lesions may take place in the nerve centers, which are beyond the reach of surgical treatment. The intracranial treatment consists of total resection of one or, better, of three branches of the trifacial nerve, and from their points of exit from the skull to their peripheral ramifications. A peripheral resection of the nerves gives as good results as resection of the ganglion.

In cases of gasseritis in which the ganglion operation seems too formidable for the patient's resistance the same result may be reached indirectly by ligature of the common carotid artery, though this is a dangerous method, or by resection of the superior cervical sympathetic ganglion. It is noted that in four cases of resection of this ganglion there followed improvement, then partial relapse, and finally, in three cases which were kept under observation for a long time, cure. There was some persistence of a slight pain in the region of the third branch. This operation exerts a vasomotor influence upon the Gasserian ganglion, its central origin, and upon the peripheral branches.

GUNSHOT WOUNDS OF THE ABDOMEN.

ROBINSON (*Kansas City Medical Record*, October, 1901) notes that up to June, 1899, the surgeon-general reports ten laparotomies for gunshot wounds of the abdomen with but a single recovery. During the Egyptian campaign there were five laparotomies done, all resulting fatally. Sir William Thomson, writing on the South African war, reports nine cases, with only one recovery. Watson Cheyne, writing from Cape Town, gives it as his opinion that only about twenty per cent of the cases of gunshot wounds of the abdomen died.

Robinson has records of forty-five cases of penetrating gunshot wounds of the abdomen. Eight were brought in dead, or died in twenty-four hours, before operative interference was possible. Of the thirty-seven cases remaining, thirty were treated without operation, twenty recovered, and ten died, a mortality of 33⅓ per cent. These wounds were received at all ranges, and in all parts of the abdomen; stomach, liver, kidneys, and bladder were repeatedly punctured, and the cases recovered as if from simple wounds.

A Mauser bullet may pass completely through the abdomen without puncturing the intestines. Robinson quotes a case. The patient was received in the hospital within one hour of the injury, was opened, and no intestinal wound was found. There was some bleeding from the omental and mesentery arteries.

Robinson's operative experience with gunshot wounds of the abdomen covers only seven cases; three recovered, and four died. One of the successful cases was the one just quoted, in which the viscera were not wounded. In a second successful case the bullet passed through the stomach, and the operation was performed two hours later. In the third successful case a knuckle of small intestine was punctured, was readily found, and was sutured promptly.

Robinson says that in civil life, where the wound is likely to be received after a hearty meal, when the bullet is generally of soft lead, is fired with black powder, and is prone to cause infection, and where the patient may be surrounded with every facility for modern aseptic procedures, his chances are doubtless better with operation. In military practice, however, where these conditions are usually absent, the patient's best chances of recovery lie in conservative treatment without operation.

HEMATURIA OF PREGNANCY.

CHIAVENTONE *(Annales des Maladies des Organes Génito-Urinaires,* No. 10, 1901) reports a case of hematuria complicating pregnancy which is extremely rare, since a careful search of the literature on the subject shows not over fifteen similar cases, and some of these can be excluded from the list of cases of hematuria of pregnancy.

A woman of forty-six, without a previous suggestive history, noted in the midst of her pregnancy the presence of blood in her urine, with intervals of normal urine, until her child was delivered; then it gradually ceased. The urine was finely colored throughout, neither the first nor the last portion passed containing an excess of blood. Some casts of the ureters were found. Many examinations failed to show the faintest sign of kidney disease.

The author discusses the question as to whether the toxemia of pregnancy associated with a hepatorenal insufficiency might have caused this hematuria. He is, however, rather inclined to the idea that the bleeding was due to pressure, and proposes as treatment, in case the bleeding be so profuse as to threaten health or life, that the amniotic sac be punctured, thus lessening the pressure which the uterus exerts upon the ureters and their vessels. In exceptional cases it may be necessary to bring on labor. As a rule the expectant treatment is all that is needful, since the ordinary styptics seem to be quite without avail.

This case is peculiar because of the absence of all pathological lesions to explain it, and not because of the mere presence of hematuria during pregnancy.

ACUTE HYDRAMNIOS.

In cases of acute hydramnios, a somewhat rare complaint, the rule should be, says PURSLOW *(Birmingham Medical Review,* December, 1901), to wait, and if the distention be extreme and causing distress, removal of some of the fluid by tapping might be performed in preference to an exploratory abdominal section. The hydramniotic uterus has many times been tapped under a mistaken diagnosis, and no harm has resulted.

In the majority of cases no treatment is needed, for when the distention begins to produce distress the uterus evacuates itself. If this is not the case rupture of the membranes is indicated. This may be done by sound. It is useless to temporize, or to attempt to draw off small quantities of the liquid in the hope of prolonging the pregnancy and getting a living child, for the children in these cases are almost invariably still-born, or, if alive, frequently are deformed.

Purslow had a case, a woman, aged thirty-four, that had had seven pregnancies. Six weeks before admission to the hospital her abdomen began suddenly to enlarge. She suffered severe pain, and could not

sleep. There was also shortness of breath, constant vomiting, and she was rapidly losing flesh.

The swelling presented all the signs of a large ovarian cyst; there was nothing to be felt of a fetus on abdominal palpation. The cervix was softened.

Aided by a diagnosis of pregnancy made about six months previously, the case was diagnosed as one of hydramnios.

On the day following admission the os had opened somewhat, and a finger passed through it felt a fetal head presenting, with very little liquor amnii in front of it.

On the evening of the next day pains began, and a day or so later a fetus of about six months development was expelled, together with a few ounces of liquor amnii. Another bag of membranes with a fetus was felt, and in about an hour this fetus was expelled together with a very large quantity of liquor amnii; 9½ pints of this fluid was collected, and much ran away. There was some difficulty with the placenta, and after this was extracted the uterus was washed out with hot water and soon contracted well. There was uninterrupted recovery.

The condition, when found in twin pregnancies, is nearly always associated with the unioval variety of twins. This variety is characterized by the twins having a common placenta and being of the same sex.

SUPRAPUBIC EXTIRPATION OF THE PROSTATE.

Total enucleation of the prostate in its capsule, the urethra being left intact, has been successfully employed by FREYER (*British Medical Journal*, Feb. 1, 1902) to cure enlargement of the prostate. He maintains that the human prostate, in early fetal life a double gland, preserves this dual character throughout life, and that in reality it consists of two distinct and separate encapsulated glandular bodies, or prostates, lying closely approximated on either side of the urethra, and adherent above and below that canal, like the segments of an orange; and that when, in declining life, the gland becomes adenomatous, it resolves itself more or less into its dual constituents by the partial giving way of the adhesions along its upper and lower commissures, or joining portions, thus facilitating its removal in its capsule as a whole, or in two parts, the urethra being left behind intact.

In one of his latest cases the author opened the bladder suprapubically, and found a sessile prostatic mass the size of a plum projecting into the bladder below the urethral orifice. Snipping the mucous membrane over this, Freyer rapidly detached the former from the prominent tumor by the finger-nail, and then continued the enucleation of the prostate out of its sheath, passing his finger underneath, outside and above the left lobe, the adhesions between the capsule and the sheath yielding more readily than any in the prior operations. The enucleation was continued on the right side, and the prostate was stripped off the triangular ligament in front. The prostate was now felt completely detached all round, and lying loose in its sheath, but with the catheter passing through its axis, showing that neither the upper nor the lower commissure had given way. The prostate, in the effort to separate the lobes, suddenly slipped off the urethra as a bead from a string. Not only the mucous membrane of the urethra, but also its muscular covering, was left behind like a sleeve covering the catheter. The hemorrhage was controlled with hot lotion. The cavity in which the prostate lay rapidly contracted on the urethra. The catheter was withdrawn, and no attempt was made to unite the urethra to the neck of the bladder by suture. A suprapubic drainage-tube was inserted, and the after-treatment was similar to that in prior operations. The patient became perfectly well.

Freyer is positive that there are no grounds for the use of the expression "atony of the bladder" in connection with prostatic cases. Even when complete catheterism has prevailed for many years, the bladder walls retain their expulsive power. They are constantly making involuntary efforts to get rid of the urine, which is merely kept back by the mechanical blocking of the passage by the enlarged prostate.

Eight cases in all have been operated upon, the ages varying from sixty-two to seventy-six years, all in broken health, and some of them almost in a dying condition before operation, with the prostates removed varying in weight from 2¼ to 10¼ ounces. Seven of these cases have been completely successful in all respects. The remaining case had recovered from the operation, and was passing urine naturally, when he was seized by acute mania, from which he died.

The comparative absence of shock is prob-

ably due, says Freyer, to the rapidity with which the operation is carried out and the trifling hemorrhage attending it.

TREATMENT OF STAMMERING OF THE BLADDER.

The cause of obstruction to urination, according to FENWICK *(British Medical Journal,* Feb. 1, 1902), is often a tonic spasm of the compressor urethræ, and the cure of the trouble is a longitudinal section of that muscle. Latterly he has merely tenotomized the compressor urethræ without opening the urethral tube, and the result has been the same.

There is a type of stammering which he terms "false stammering." This term includes those cases of prostatic inflammation or senile enlargement, or atony of spinal origin, or of urethral stricture, which suffer from so-called nervous stammering, but in which there is a distinct change, a deviation from health which induces reflex irritation, setting up the incoördination in the muscles regulating the expulsive effort. The treatment of this type is similar to that of the ordinary type of the affection. The author remarks that in some of the cases of vesical irritability in women which are relieved by exploration of the bladder with the finger, the beneficial result is due to overstretching the sphincter muscle, the analogue of the male compressor urethræ.

There is no benefit from section of the compressor urethræ in the case of male patients with a history of prostatitis, who complain of having to wait before they can urinate, and also of having a sense of obstruction to the stream when it is started. This latent period and sense of obstruction is due to inflammatory swelling of the neighborhood of the urethral orifice of the bladder, and is in no way connected with true stammering. The same remarks hold good in senile enlargement of the prostate.

GALL-STONE ILEUS.

KAREWSKI *(Medical Press,* Jan. 1, 1902) notes that the group of symptoms of gall-stone ileus is peculiar and does not lend itself to the formation of a diagnosis. The ileus is not dependent upon the size of the stone, since calculi of comparatively small size have set up fatal obstruction and large accretions are passed without trouble. Nor does the cause of this condition lie in the narrowing of the lumen of the bowel. Moreover, the acute symptoms follow the entrance of the stone into the bowel, it may be only as an exception; in many cases the patients have never had symptoms of cholelithiasis, or have had them years before. A change or temporary cessation of the symptoms is common. The author presents five different cases. It is noted that very large accretions reach the bowel by ulcerations and not by the natural passage, and even though this ulceration deposits these stones into the colon, obstruction may still take place. Usually these stones ulcerate into the duodenum.

The stone sometimes drags the lumen of the intestine down into the pelvis, thus encouraging obstruction, or it becomes encapsuled, or sets up contraction of the belly walls. Indeed, ileus is usually set up by inflammation. The features of the cases which suggest diagnosis are the advanced age of the patient, the female sex, the variation of the symptoms between ileus and a patent bowel, the high seat of the obstruction, and the unusual retention of the patient's vital powers. It is worthy of note that only in about five per cent of cases in which gall-stones are found after death have there been symptoms during life.

As to treatment, the usual remedies are sometimes successful, sometimes not.

In accordance with the predilections of the collector of statistics will such studies show in favor of either conservative or operative treatment. In so far as the last ten years are concerned, the statistical study distinctly favors operation, which in itself is not difficult.

In general, a brief time should be given to conservative treatment. In case relief is not shortly attained, a laparotomy should be performed.

ADENOID VEGETATIONS.

RIMSCHA *(St. Petersburger Medicinische Wochenschrift,* No. 51, 1901) notes that Meyer was the first who, in 1868, having had brought to him a deaf girl, discovered by a digital examination the enlarged pharyngeal tonsil, removed it, and so restored his patient to health. This pharyngeal tonsil was called by Meyer "adenoid vegetation."

This condition is physiological, but when it reaches undue growth produces direct mechanical and indirect reflex symptoms of a most varied nature.

The true size of these vegetations cannot be decided during the course of an acute catarrh. Moreover, the enlargement is, in most cases, simply an index to a general diseased condition. The cure requires constitutional remedies aside from the mere removal of the growth.

As to the etiology of this affection, it is fairly common in the progeny of neurotic parents.

The operation in some cases requires general anesthesia; in other cases it can be done without this.

When performed after puberty, the results are less satisfactory than when the operation is done earlier.

It is scarcely worth while simply from the standpoint of being a preventive measure against tuberculosis.

Digital examination is not enough on which to found a diagnosis.

After thorough removal the tendency to recur is rare.

SARCOMA AND HODGKIN'S DISEASE TREATED BY EXPOSURES TO ROENTGEN RAYS.

In cases of sarcoma which cannot for any reason be treated successfully by surgical means, PUSEY *(Journal of the American Medical Association,* Jan. 18, 1902) believes that the effect of *x*-rays should be tried. In cases, also, of sarcoma which have been treated surgically, the subsequent use of *x*-ray exposure as a prophylactic should be considered.

Pusey has treated three cases by this method. The second case was a failure because beyond relief by any method of treatment; the third case has presented evidence of the beginning of a cure; and the first case, small round-cell sarcoma, was completely cured. On the right side of the patient's neck a swelling extended from in front of the angle of the jaw to within an inch of the posterior median line, and from the mastoid process almost to the clavicle. It rapidly increased in size. It was hard, not freely movable, and tender. The neck was almost rigid from interference of the tumor with motion. Within the period of one month the patient underwent twenty-one exposures with hard tube and a weak light. The distance of the tube from the surface was maintained at five centimeters, and the length of the exposure varied from ten to fifteen minutes Slight erythema appeared which developed into pronounced dermatitis, when the exposures were stopped. The effect of the exposures was almost magical. Within ten days the tumor had shrunken perceptibly and the motions of the head were freer. In about two months from first beginning the treatment the patient was practically well. There has been no sign of recurrence.

Pusey has had almost similar success in the treatment of Hodgkin's disease with the *x*-rays. In one of his two cases the treatment by exposure to the *x*-rays was successful after other procedures had failed.

OVARIAN TRANSPLANTATION.

There has been a decided measure of success attending the attempts to transplant ovaries, as far as it relates to animal experimentation. A review of the literature on the whole subject has been made by NICHOLSON *(University of Pennsylvania Medical Bulletin,* January, 1902).

As the result of Knauer's experimentation, it would seem that there is no doubt that in the rabbit the ovaries can be transplanted, that they may be placed on muscle or on the peritoneum, that they will not only be nourished but will functionate, and that pregnancy and parturition are normal, the young are suckled, and are normally developed.

Ribbert found new vessels in the ovary only after seven to eight days, while Knauer found them after four days. This is probably due to the fact that Ribbert did not surround the transplanted ovaries with peritoneum.

After transplantation atrophy of the external or internal genitalia, or breasts, was not found. Castration causes a general atrophy of all these organs.

Knauer concludes, in view of the experiments of others and also from his own work, that it may be accepted as a fact that the influence of the ovary is the necessary factor in the prevention of atrophy, and that it can exert its influence from any part of the body provided only that it be maintained in a condition of health.

The good results of ovarian therapy in

some cases that have been reported also tend to strengthen the belief that ovarian tissue exerts an influence over the economy distinct from the functions of ovulation. In this connection, Von Loewy and Richter conclude that after castration, in the course of time, a marked increase of gas interchange occurs, the consumption of oxygen decreasing twenty per cent in ten to fifteen weeks after operation, while the body weight increases; that by the use of oöphorin after operation this diminution in gas interchange is prevented and the consumption of gas is actually increased beyond the original limits—after withdrawal of this oöphorin there is a gradual decline of this increase after a considerable time; that in normal, not castrated, animals the oöphorin has no influence on gas interchange; and that the use of the male sexual glands has no effect on the castrated female as regards the interchange of gas.

In the post-mortem findings of Halban, who set out to prove that the ovaries are necessary for the development of the uterus and other genitalia in the young, there was corroboration of the findings of several other observers, who have shown that atrophy occurs in human beings after castration, and that development ceases in the young, or that even an actual decrease in size occurs.

As a result of his investigations, Halban concludes that there is a secretion of the ovary which, entering the blood, not only prevents atrophy of the other sexual organs, but also exerts a marked influence on their development.

In McCone's series of ovarian transplantations, pregnancy occurred twice in six cases, and McCone further showed that the ovary may be successfully transplanted from one species to another, by grafting from the bitch to the rabbit.

The six cases of Morris that were fully recorded were operated on for diverse conditions, mostly of an inflammatory nature and of such a grade that the ordinary plastic work was impossible. The patients menstruated after operation. In one of the cases, where menstruation had been absent because of the infantile condition of the genitalia, menstruation was established after the operation.

The site of the grafting was, as a rule, the broad ligaments, though in Morris's earlier work he chose the mesometrium, the ovary being so implanted that its uncut surface projected into the cavity of the uterus, while the cut surface was in contact with the muscle. Three of the cases were homoplastic grafts, while the remainder were the recipients of portions of ovaries from other patients subjected to operation at the same time. The ovaries were preserved in a basin of salt solution kept at a temperature of 100° by an assistant. It was found that the insertion of the ovary into the split broad ligaments in such a way that its cut surface was in contact with the cut surface of the ligament, and that the uncut portion of the ovary projected into the peritoneal cavity, gave the best chance of a successful transplantation.

The results noted have been most valuable in the relief or rather avoidance of the menopausal symptoms. The opinion is expressed that it may be possible to treat some of the cases of operative menopause by the transplantation of ovaries from other women. Extra-uterine pregnancy must, however, be reckoned as a possibility in a certain proportion of the cases of transplantation.

The ovaries of a prostitute were transplanted by Dudley. Three weeks after the section the menstrual flow appeared at its proper time. Two months later the patient reported that her condition was greatly improved, that sexual intercourse was not painful, and that her subsequent menstruation was without pain and less profuse than before operation.

Glass made an implantation from one woman to another through the vagina. Sixteen days after operation menstruation occurred. The patient's health greatly improved and her mental equilibrium was regained. There are, however, only rare occasions for the legitimate employment of this course.

Summing up, Nicholson says that transplantation, either homo- or heteroplastically, is possible, and that pregnancy will follow in a small proportion of cases. There is without doubt an influence inherent in the ovaries which is very important for the development of the genitalia, and also for their conservation. There is some evidence that the influence of transplanted ovaries may be most beneficial in the prevention of degenerations of the genitalia. Finally, all the evidence tends to strengthen the position of the conservatives that the whole ovary or a

part of it should be left in all operations where it will not tend to subject the patient to a greatly increased danger.

THE TREATMENT OF THE DEFORMITIES OF INFANTILE PARALYSIS.

The most efficient treatment of the deformities resulting from infantile paralysis, according to PORTER *(Medical News,* Dec. 21, 1902), is the preventive treatment. The family should be told that so far as the paralysis is concerned the account is closed, and if they wish to make the best possible use of the limb and prevent more trouble in the future in the shape of deformities, they must take steps at once to do so.

Every case of infantile paralytic deformity, however slight or severe, can be improved to some extent by appropriate treatment. That treatment may be anything from adjusting a simple ankle-brace to correcting clubfoot, to an extensive tendon transplantation or the production of an artificial ankylosis of a joint.

Simple tenotomy of the shortened tendons in these cases is of great benefit, aside from the release of tension and improvement of function that result. Tenotomy alone, however, for correction of a deformity caused by contractures is disappointing. Unless the improvement gained by the operation is maintained by proper mechanical apparatus, the contractures and deformity will almost surely recur.

BONE-FILLING WITH AMALGAM.

A man came to BARBAT *(Occidental Medical Times,* January, 1902) with a sinus opening on the inner side of the tibia close to the left ankle-joint, the result of a thorough operation for the cure of recurrent ulcer. The cavity in the bone did not appear to be large, and the probe touched what appeared to be solid bone on all sides. Almost every other treatment having already been tried, Barbat suggested filling the bone cavity with amalgam.

What had appeared as solid bone was only a hard mass of inflammatory material resembling cartilage, which, when removed, left a cavity measuring nearly five centimeters long and over two centimeters wide, and fully three centimeters deep. After the cavity was thoroughly cleaned out and dried, copper amalgam was pressed against the bottom and sides until the whole surface was covered, leaving a hole, however, which was partly filled with dental cement, the top being covered with amalgam. The skin was sewed over the filling, and dressings were applied. There was, as a result, complete cessation of the pain, and the patient was able to walk about without crutches for the first time in several months. The small opening refused to close, and after the lapse of ten months a probe could be passed between the amalgam and the upper end of the bone cavity, thus showing that some of the bone had broken down.

On operation it was found that the opening communicated with the medullary cavity of the tibia, and there was undoubtedly some osteomyelitis present. Since it was impossible to fill the medullary cavity, the amalgam was removed. The bone was then found in perfect condition, except at the upper end, which was curetted, and the cavity was filled with formalin gelatin. About thirty days later the last portion was removed, leaving a clean, healthy looking, granulating surface.

The hole was very large, and Barbat was at a loss to know how it would terminate, when it occurred to him to graft skin on the granulating surface. The wound was dressed with protonuclein every other day. It was found that the skin was beginning to grow downward into the cavity, and so the skin grafting was postponed. There was practically no secretion from the wound, and the dressings were made at longer intervals until, about six months from the last operation, the cavity was entirely covered with new skin and the patient was discharged cured.

TREATMENT OF ACUTE ARTICULAR RHEUMATISM BY PUNCTURE AND INJECTION OF CARBOLIC ACID.

ZAGATO (quoted in *Annales de Chirurgie et d'Orthopédie,* No. 12, 1901), after fruitless internal treatment of a right knee swollen as the result of an acute articular rheumatism, aspirated about two ounces of clear fluid from the joint. This immediately relieved all agonizing pain, which even large doses of morphine had not succeeded in assuaging. Fifteen minims of a 2.5-per-cent solution of carbolic acid was then injected.

When the needle was withdrawn the joint could be moved freely and painlessly. It was treated by massage and by wet dressings of salicylic acid lotion. There was a slight recurrence of swelling unaccompanied by pain. In three or four days the joint was entirely cured. Shortly afterward the left knee became swollen and painful. This joint responded equally well to the same treatment.

Zagato recommends this aspiration and injection of carbolic acid in the treatment of polyarticular, acute rheumatism characterized by great distention and pain.

SERUM THERAPY APPLIED THROUGH THE RECTUM.

Consulted with regard to a patient, aged fifty-eight, for many years afflicted with considerable permanent glycosuria, whom he found suffering from erysipelas of the face spreading toward the neck, COLLINS *(British Medical Journal,* Dec. 7, 1901) determined to try serum therapy.

After a lavement of hot water in order to wash out the bowel, Collins injected from an ordinary glass syringe through a Jacques catheter, high up into the rectum, 10 cubic centimeters of antistreptococcus serum at 5 P.M. When examined four hours later the patient already felt and looked better. Next morning, at 7 A.M., the nurse said he had passed an excellent night, and his temperature had become normal. The erysipelas had ceased to spread, and was declining. The rectum having been washed out as before, another dose was given by the bowel. Two hours later, after a breakfast which he had enjoyed, he was so much improved that he was walking about the room dictating business telegrams. His further progress was entirely satisfactory.

Early in 1896 M. Chantemesse recounted his experience in favor of rectal serum therapy in twenty cases, laying stress upon the fact that in all of them the fluid was absorbed easily and quickly, without subsequent unpleasant or untoward effects, such as pyrexia, joint pains, or skin eruptions; noting also that the same effect was produced by the same dose of serum administered either subcutaneously or by the rectum.

Collins's experience in cases of diphtheria and erysipelas corroborates the statements of Chantemesse.

BURIAL OF A GOLD PLATE IN AN ERASED ELBOW.

Led by observing that small disks and plates of silver and of aluminum when buried in the skin produced, where they lay before removal, a little closely fitting bed of connective tissue, with a surface as smooth and as glistening as that of a mirror, KEETLEY *(British Medical Journal,* Dec. 7, 1901) resolved to bury a thin gold plate temporarily in the elbow of a woman twenty-three years old, operated on for tuberculous trouble.

Some sharp edges of bone at the lower part of the humerus were cut off with bone forceps. The joint was well sponged and washed out with warm solution of perchloride 1:2000. The gold plate, cut to a shape resembling a short-peaked bicycle saddle as seen from above, was spread over the end of the humerus, the narrower portion going up in front. The remains of the olecranon were sutured to the ulna with silkworm-gut, the wound closed, and the limb fixed in a plaster-of-Paris bandage, with the elbow nearly at a right angle. Eight weeks afterward the wound was reopened, and the gold was found a little crumpled or waved, and gripped between the opposing joint surfaces. It had to be removed in separate pieces. The wound was reclosed with silkworm-gut. In about ten days the patient was discharged with a great deal of smooth and painless mobility in the joint. At the expiration of four years the movements of the joint were still smooth and painless. They were limited only in the direction of extension.

The gold plate used is known as gauge 0.50, but Keetley recommends gauge 0.75, which he thinks would produce better results.

STATUS OF THE TREATMENT OF PULMONARY TUBERCULOSIS BY PLEURAL INJECTIONS OF NITROGEN.

Commenting on articles that have recently appeared concerning the treatment of pulmonary tuberculosis by operation to secure compression, LEMKE *(American Journal of Surgery and Gynecology,* January, 1902) notes that 350 cases of pulmonary tuberculosis in all have been subjected to this treatment, and he deals with the practical side of the theories evolved about the treatment of the complaint. He says that

in theory there exists a little danger in the rather sudden compression of an entire lung, but in practice this is not to be thought of. Even when the active lung is involved in the tuberculous process, there is no danger of overtaking it or of hastening the disease process. Forlanini even goes so far as to say that if the lung in which the process is more advanced be compressed there is improvement as well in the active as in the compressed organ. During the past year a number of case of bilateral tuberculosis have been treated by compression, with the result that Forlanini called attention to the method.

But one of the possible accidents of the operation merits serious consideration because of its comparative frequency, unless specially guarded against. It is the tendency to syncope or faintness at the time the first injection is made. To avoid this it will only be necessary to allow the gas to flow rather slowly, or better, to interrupt the current from time to time, and to keep the patient in the recumbent or semi-recumbent posture for an hour or two after the operation. A sip of cold water, a tablespoonful of brandy, or the application of cold water to the face and head will usually quickly relieve this tendency of syncope.

There are certain results which may always be expected:

1. Diminution of cough and expectoration, except during the first day or two after the injection. If cavities have been compressed the expectoration is always profuse immediately after the operation, and becomes decidedly diminished after the first or second day. There are almost no exceptions to this rule.

2. There is a remarkable effect upon the fever. In some of the cases injected when the temperature ranged from 100° to 103.5° daily, almost entire absence of fever was noted in from forty-eight to seventy-two hours after the compression of the diseased lung. This diminution of fever may be due in part to the absolute rest insisted upon with such cases, but the observations have been too numerous and uniform to leave any doubt about the effect of lung compression upon the fever of phthisical patients.

3. There has been almost uniform gain in weight, especially, of course, in those cases whose weight was below their normal. This gain in weight is sometimes very marked; some cases have gained as much as 30 or 40 pounds within eight or ten weeks. There probably is no single indication of improvement in pulmonary tuberculosis so valuable as this gain in weight. In eighteen cases treated by compression, and recently reported by Loomis, a gain of weight was observed in sixteen.

4. One very important effect of pulmonary compression by intrapleural injection of gas is the cessation, almost immediate, of hemorrhage. In the cases injected during an attack of hemoptysis the effect was almost immediate and perfect. It is a very easy matter to inject nitrogen gas, or even atmospheric air, into the pleural cavity of a patient having a pulmonary hemorrhage, as it can be accomplished with an ordinary aspirating syringe if the more elaborate apparatus is not at hand.

Undoubtedly the most striking effect of compression has been observed in rather acute cases with considerable involvement of tissue, cases in which there was much cough and expectoration, considerable fever, râles heard over half or an entire lobe, with quantities of bacilli in the sputum. In such very acute cases the effect of compression has been, perhaps, most noticeable in that the cough, expectoration, and fever diminished very rapidly, and after the gas had been absorbed, auscultation showed a very remarkable diminution of physical signs. Next to this class of cases may be mentioned those in which, though the physical signs are rather slight, there are repeated pulmonary hemorrhages, with rather high fever and other marked constitutional effects. In one case of this class treated by intrapleural injection of nitrogen, there was entire absence of fever after the third day, cessation of pulmonary hemorrhages, the cough and expectoration were materially diminished, and a gain of ten pounds in weight during the first two weeks while the patient was kept in bed.

A third class may comprise those in which the lesions are rather more advanced, and in which the presence of cavities constitutes a serious barrier to the effort of healing.

Further than this it is perhaps impossible to classify the cases in which the intrapleural gas injections may be used.

It is to be remembered that the effect of these intrapleural injections of gas is purely mechanical, and that nothing need or should be omitted in the way of hygienic or so-called constitutional treatment.

The rationale of this treatment by compression may be summed up briefly:

1. Pulmonary tuberculosis is, in the beginning at least, a localized lesion which tends to heal by cicatrization, and never (in the lung) by resolution. There is sufficient evidence to warrant the statement that compression tends to favor and hasten this cicatrization about a focus of disease.

2. The dissemination of tuberculosis in lung tissue by continuity or contiguity is slight and unimportant. It is the dissemination of the disease along the air channels and the lymph vessels that is the source of danger; on account of the comparative quiescence of the compressed lung and the occlusion of these avenues of dissemination, spreading of the disease is impeded. In support of this it may be stated that newly formed tubercles are not seen in lungs that have for some time been in a state of collapse or compression. Old fibrous or caseous lesions e often seen in such lungs.

3. Cavities are emptied of their secretion, and finally obliterated.

4. Absorption of toxins is diminished. The lymph circulation is diminished.

INTRA-ABDOMINAL RETENTION OF TESTES TREATED BY OPERATION.

A case of intra-abdominal retention of the testes was cured by ROUTIER (quoted in *Edinburgh Medical Journal,* December, 1901).

The man, aged twenty-one, suffered from a pain in both iliac fossæ, which was increased by pressure. The scrotum was found to be empty. He had experienced erections since the age of thirteen, and since eighteen he had performed the sexual act at frequent intervals. On palpation, a small swelling was felt in the upper part of the inguinal canal on the right side, but nothing on the left.

An operation was proposed, to place the testicles in the scrotum; a promise was given not to remove them. The right inguinal canal was opened up and the testicle exposed, but it was found impossible to pull it outward because of the close adhesion between its tunica vaginalis and the peritoneum lining the iliac fossa. The testicle appeared to be of normal size and consistence, and the pain which the patient complained of appeared to be due to its being pressed upon. The testicle was therefore liberated from its surroundings and left free in the abdomen, being attached only by the tunica vaginalis, which had been opened.

A similar operation was performed on the left side.

The patient was entirely freed from his sufferings, and resumed his usual sexual habits. The semen, as before the operation, was devoid of spermatozoa.

PROPER FOOTWEAR.

The shoe for a normal foot, or nearly so, which can voluntarily assume the positions of strength, says SAMPSON *(American Medicine,* Jan. 18, 1902), should have the following features:

1. Most important of all, the angle of lateral deflection of the shoe should be the same as that of the foot in its adducted position.

2. A straight inner edge, or, if hallux valgus exists, an inner edge a little straighter than the inner edge of the foot, thereby better supporting the long arch, and preventing pronation.

3. The front of the shoe of the same depth along the inner edge as the thickness of the foot at that place, thus permitting the thickest portion of the front of the foot, the big toe, and inner side to assume their proper positions.

4. The shoe convex, not concave, along the outer border of the shank at the mediotarsal articulation. If convex we have pressure at this point, interfering with adduction.

5. The forward part of the shoe, as wide as the weight-bearing portion of the foot at that point, and room for the individual toes to rest on the sole.

6. The posterior portion of the shoe grasping the heel of the foot firmly and well supported. The stiffening should not extend beyond the mediotarsal joint.

7. No spring—*i.e.,* dorsal flexion of the front of the shoe—which interferes with walking and lessens or destroys the transverse arch.

8. The distance from points in the shoe corresponding to the heel and distal end of the first metatarsal bone, the same as in the foot. If the distance in the shoe is longer adduction is interfered with.

9. The shank of the sole convex along the outer border, thus better supporting the

outer arch of the foot; it should also be higher on the inner edge and not so wide but that the upper of the shoe can snugly fit the instep.

10. The sole of the front of the shoe flat from side to side.

11. The lower and broader the heel the better.

12. A steel spring in the shank of the shoe helps maintain the shape of the shoe and that of the foot.

13. A little "Scotch" or lateral extension of the sole makes the base of support wider, renders the parallel gait easier, and if broader along the inner side than the outer it hinders pronation.

14. The bottom of the last or the inner sole pattern must include the area covered by the weight-bearing portion of the foot.

Sampson is in favor, and has actually worn with benefit, a device with a toe-post. It gives a greater sense of security and strength, and is comfortable. The weakened foot which can be passively adducted—with the toe-post and the aid of a proper shoe—can be relieved from its previous symptoms, for it holds the foot in the adducted position, thus naturally supporting the long arch, and prevents the rolling over inward, and overcomes hallux valgus.

There are other methods of treating the pronated foot, as massage, forcible adduction of the foot, and gymnastics. In extreme cases a flat-foot brace, if it can be worn, is of great service. Symptoms should not simply be relieved; the treatment should be progressive, and when new shoes are necessary, see if the foot will not stand a little more adduction, and alter the lasts accordingly.

To make a flat-foot brace, first make plaster casts of the feet in the adducted position. To do this have the patient sit in a chair with the leg of the foot from which the cast is to be taken resting on the knee of the other leg. Having poured enough plaster on a piece of paper on another chair near enough for the foot to rest on, let the foot sink into the plaster with the outer side of the foot down and the long axis of the foot horizontal. As it sinks adduct the foot by lifting up the big toe and hold it adducted until the plaster has hardened. Rub some vaselin over the edges of the plaster and a little over the foot and cover the rest of the foot with plaster. When the plaster has hardened separate the two halves, revaselin and tie together, and this will form the mold for the cast. After making the cast, mark the mediotarsal joint and the tuberosity of the fifth metatarsal bone. Outline the brace. The casts may need a little trimming; the arch may be increased a little. From these casts the braces are made according to the outline, using No. 20 or 22 sheet steel. These braces assume their proper positions in the proper shoe and do what is claimed for them. A toe-post also helps out the flat-foot brace by overcoming the hallux valgus and maintaining the adducted position.

TREATMENT OF SYPHILIS AND THE ADMINISTRATION OF MERCURY.

In some cases of syphilis, says AYRES *(Denver Medical Times,* January, 1902), the protiodide controls the symptoms, but in the majority it is of very little use. Experiments with mercurol were conducted at Bellevue Hospital for eight and a half months, with 180 cases; the histories of 95 of these are recorded. The remainder could not be kept under observation and are therefore passed over. The dosage of the mercurol, regulated either by reaching the point of tolerance or control of the disease, varied from one-half to six grains. In 64 of the 95 cases the disease was controlled as follows: In two weeks, 8; three weeks, 12; four weeks, 14; five weeks, 6; six weeks, 5; seven weeks, 2; two months, 8; ten weeks, 2; three months, 5; and four months, 1. The remainder are marked thus: Decidedly improved, 17; improved, 8; no improvement in two weeks, 3; no improvement in four weeks, 1; and no improvement in three months, 2. The latter were all dispensary patients, and it is uncertain whether they took their medicine regularly.

The plan was to increase the dose steadily from one grain until the symptoms were controlled, or until there was a slight tendency on the part of the teeth and gums to become tender. If the symptoms were not controlled before the physiological effect of the mercurol made itself felt, small doses of potassium iodide were added, and in every case where the mercurol was taken according to directions, with the exceptions noted above, the symptoms were controlled.

In 67 out of the 95 cases tabulated, no other medicine than mercurol was given. In 15 out of the remaining 28, the addition of iodide of potassium was found to be suffi-

cient to control the disease, while in 6 others the addition of an iron tonic sufficed for this purpose.

Ayres, in conclusion, states that he uses mercurol in his private practice to the exclusion of all other drugs. His experience is that he gets better results. He has found no form in which mercury can be given with such good results as in that of mercurol.

PROTARGOL.

After reviewing his data on the subject, HIERS *(Georgia Journal of Medicine and Surgery,* January, 1902) is amply persuaded as to the efficacy of protargol in pyogenic and trachomatous eye affections. The results obtained, however, are commensurate with the strength of the solution employed. In acute conditions the most gratifying results were derived from a strength of at least 20 per cent. The frequency of application is likewise a potent factor and conducive to success. Should the desired end not prove flattering, it is essential to increase either the strength of the solution or repeat its application. This may be done as often as is deemed necessary. An ordinary swab of absorbent cotton firmly attached to an applicator will serve its purpose admirably. This should be well saturated and rubbed thoroughly over the diseased parts. On account of its unirritating property no apprehension need be felt. No harm can arise, consequently it is advisable to take advantage of the opportunity to completely medicate the cornea, conjunctiva, or retrotarsal folds, as may be indicated. The subsequent use of salt is superfluous, but the employment of ice poultices should be urged. With proper discretion and care no evil consequences should follow. It is Hiers's habit to make use of solutions ranging from 4 to 20 per cent in strength, but always to suit the exigency of each individual case. Under this plan of treatment the discharge rapidly decreases and soon loses its purulent character. The chemosis and pain appreciably diminish, and the mucous membrane resumes its normal appearance and condition.

GALVANOCAUTERY AND CIRCUMCISION.

This operation is performed by LEDUC (quoted by *Medical News,* Jan. 18, 1902) as follows:

Perfect anesthesia is first produced by a one-per-cent solution of cocaine. The prepuce is then seized in two clamps whose points approach each other at the root of the frenum in such a manner that each includes a triangle whose base takes in the lower third of the preputial orifice and whose apex corresponds with the root of the frenum. With the galvanocautery this tissue is then cut away. A dull-red heat of the instrument is necessary. A third clamp is now placed so as to remove whatever more is necessary. If the temperature of the instrument has been correct the wound does not open and there is no bleeding. The operation can be done rapidly and very safely. The only dressing necessary after it is a covering of ointment with a low percentage of some antiseptic like salicylic acid or red precipitate in it.

The patients as a rule can continue their vocation without interruption. The method has the advantage of uncovering the glans of the organ perfectly and also of giving the least possible deformity. Occasionally, if the temperature of the cautery has not been properly regulated, the lips of the wound will spread. Healing takes place by granulation and is usually slow, but even then the final result is good.

DRAINAGE IN APPENDICITIS WITH OUTLYING PERITONEAL INFECTION.

His conclusions on the subject of the question of drainage in appendicitis with outlying peritoneal infection are summarized by WESTBROOK *(Brooklyn Medical Journal,* February, 1902) as follows:

There are as yet no well recognized formulæ to guide the surgeon as to when to omit drainage in purulent collections attending appendicitis.

While it is true that the peritoneum may be relied upon to take care of a certain quantity of infectious material, there exist no means of estimating in any individual case what that quantity may be. It is contrary to experience to expect the peritoneum to care for any large quantity of infection, otherwise we would never have to operate at all for appendicitis, or septic peritonitis.

An estimate of the individual's resistive powers to infection may be approximately made by the usual methods of consideration of the condition of his heart, lungs, kidneys, etc., his pulse and temperature, his previous health and habits, and perhaps in some in-

stances by the amount of leucocytosis found on blood examination. But we have no means of placing over against this, at time of operation, an accurate estimate of the amount and virulence of the infection with which the patient's resistive powers will have to contend. And we cannot estimate any individual susceptibility or immunity to infection which he may possess.

If the surgeon decide to omit drainage in any case of appendicitis with outlying infection, he must do so, relying entirely on his personal ability to estimate the clinical facts in the case, and the nature and extent of the pathological process exposed at operation. Then, if his previous experience has brought him to the point of omitting drainage, he is warranted in doing so.

The majority of surgeons the world over still consider drainage necessary in all degrees of the class of cases under discussion, which must be considered the safer teaching.

ACTINOMYCOSIS AND ACTINOMYCOSIS ABDOMINALIS.

Four chief avenues of infection in this disease have been distinguished, say VAN DER VEER and ELTING *(Medical News,* Jan. 18, 1902), namely, through the mouth and pharynx, through the respiratory tract, through the gastrointestinal tract, and through skin wounds, etc. There is also a group of cases in which no definite portal of entry is discoverable.

Poncet and Berard propose a division of actinomycotic infections into the following groups: (1) Cervicofacial; (2) thoracic; (3) abdominal; and (4) cutaneous; foci in bone, the spinal column, the genito-urinary organs, the brain, special organs of sense, etc., being regarded as complications.

Statistics prove that about 55 per cent of the cases are of the cervicofacial type; 20 per cent thoracic and pulmonary; about 20 per cent abdominal; and about 5 per cent of a variety of types.

Grill has distinguished three typical periods in the course of abdominal actinomycosis: (1) The initial period; (2) the period of tumor formation; (3) the period of fistula. To these three periods Hinglais has added a fourth—a period of repair. Although in certain cases this or that period may predominate or be entirely absent, nevertheless the periods mentioned are usually characteristic of the disease when localized in the abdomen. Pain, while usually present, is rarely severe, being rather a sensation of tension and discomfort.

In general, those cases offer the best prognosis which are most amenable to surgical treatment—*i.e.,* the abdominal form rather than the thoracic. The oldest cases are most unfavorable because of the possibilities offered for extension or metastasis. In 77 cases of abdominal actinomycosis treated surgically Grill found 22 recoveries, 10 improvements, and 45 deaths.

It is practically impossible to recognize abdominal actinomycosis in its earliest stage. In the later stages, when tumefaction is extensive, with foci of suppuration and numerous fistulæ, and the discharge contains characteristic granules, diagnosis is comparatively easy. Sarcoma, carcinoma, and tuberculosis of the cæcal region must also be considered in differential diagnosis.

Greater care in the selection and preparation of cereals and vegetables would certainly diminish the number of infections by this avenue. Since thorough cooking destroys the spores of actinomyces in flesh, prevention of the infection from this source would appear to be comparatively easy.

In general, iodide of potassium appears to act more satisfactorily and effectually the earlier in the course of the disease it is administered, and in large and gradually increasing doses. Experiments have shown that it has little or no effect upon the growth of the actinomyces on artificial media.

Billroth, Kahler, and others have tried the effect of tuberculin, improvement seeming to have followed its employment in a few instances. An interesting fact brought out by Kahler, Illich, and Wolff, and confirmed by Arloing, is that men and animals infected with actinomycosis react to Kochs tuberculin the same as do cases of tuberculosis. Ziegler has reported a favorable result following the injection of protein obtained from cultures of the staphylococcus pyogenes aureus. Gautier has seen favorable results follow the use of electrolysis, and Braum recommends the use of Fowler's solution. In general, however, combined medical and surgical treatment would appear to have produced the best results, especially in the forms of actinomycosis more superficially placed.

It is frequently difficult to determine the extent of the process, and consequently the extent of surgical intervention required.

Careful exploration of the fistulæ and foci should be practiced, as far as possible, with the removal of as much diseased tissue as consistent. If apparent recovery occur, the case should nevertheless be watched for several years because of the great possibility of recurrence.

TOE DEFORMITIES.

For the distortion of the little toe of a girl's right foot, GRIFFITH *(American Medicine,* Feb. 15, 1902), using a half-inch strip of rubber plaster a foot long, looped the toe over the second articulation. The tail of the bandage was brought under the sole up over the instep like a sandal thong, and was tightened sufficiently to bring the toe into alignment. This, and a broader shoe, continued for a month, brought about complete restoration. Another case was cured, because of more recent origin, with a loose strap in only two weeks.

For displacement of the great toe inward or hallux valgus, with or without an associated bunion, he recommends the employment of a wedge made from an ordinary deep-flanged wooden spool of suitable size, or a portion of a tight roller bandage gashed upon one-quarter circumference to enable it to be retained in position. Placed between the great and second toes upon retiring this will give almost immediate relief. Its use should be continued over a lengthened period. There is not found a complicating displacement of the second toe, as the pressure is exerted directly forward and out against the distorted phalanges of the great toe from the soft parts of the web.

RECURRENT CARCINOMA TREATED BY THE ROENTGEN RAYS.

For a recurrent scirrhous growth, the size of a hen's egg, on the manubrium of the sternum, FERGUSON *(British Medical Journal,* Feb. 1, 1902) refused, as did other surgeons, to operate, but palliative treatment failing, and the patient getting steadily worse, he advised the use of Roentgen rays. They were employed for twenty minutes for as many days. After an absence of one month the patient returned in excellent health and spirits. The sternal growth had completely disappeared, the ulcerated surface below the growth had healed, and the pain, considerable before, had greatly lessened, being confined to the arm alone, the swelling of which had diminished. There was still some deposit around the axillary vein, but Ferguson is hopeful that further treatment with the rays will eradicate this also.

A 12-inch spark was used, and the distance of the tube from the body was from 8 to 10 inches.

He reports also a case of rodent ulcer of the face healed by the same means.

PARTIAL NEPHRECTOMY.

To illustrate the possibility of saving portions of the kidneys, MOYNIHAN *(British Medical Journal,* Feb. 1, 1902) cites three cases. Two of these cases were cysts, and the third was a myxosarcoma of the lower pole of the right kidney.

In the case of the solitary cyst in the connecting band of the horseshoe kidney, the abdomen was opened by an incision to the right of the middle line, about five inches in length. On exposing the tumor it was found to be cystic in character, and to lie behind the peritoneum of the posterior abdominal wall. Crossing over the front of the cyst was the superior mesenteric artery close to its origin; behind the cyst lay the aorta and vena cava, and also the transverse third portion of the duodenum. The cyst was thin-walled, equal to a Tangerine orange in size, tense, swollen, and unilocular. The peritoneum over it was incised and the cyst gently stripped. It was then found that on each side the cyst merged into a flat band about one inch in breadth and half an inch in thickness, continuous with the lower poles of the kidneys. The pelvis of each lateral kidney mass was then exposed in order to determine the exact position and course of the ureters. The ureters were symmetrical, and crossed the isthmus where it joined the kidney. In stripping the peritoneum off the kidney the ureters had been carried with it. The cyst was aspirated; on the left side it seemed to spring almost directly from the kidney, a very short portion of the connecting band intervening; on the right side there was fully three-fourths of an inch of unaltered kidney substance in the band from which the cyst sprang. On each side a wedge of the kidney substance from which the cyst grew was removed and the edges of the wounds approximated by interrupted catgut

sutures introduced with an intestinal needle. There were now two separate kidneys, each with a sutured wound at the lower pole. The incision in the posterior layer of the peritoneum was stitched with a continuous catgut suture, and the abdominal wound closed in the usual way without sutures. The patient recovered.

The successful operation in the case of the myxosarcoma of the lower pole of the right kidney of a woman, aged twenty-one, was begun by the usual lumbar incision, subsequently prolonged into the lumbo-ilio-abdominal incision. It was found that the tumor was very much smaller in size than had been anticipated. The kidney stripped readily in its upper half; the lower half, to which the enlargement was confined, stripped with the greatest difficulty, and then incompletely. The incision at this stage was enlarged, and the kidney, with much thickened capsule adherent at its lower border, was delivered. The upper half of the kidney was healthy in appearance and supple; the lower half was enlarged, tough, with thickened capsule, but in places soft and friable, and beads of pus oozed out here and there. The pelvis of the kidney was healthy, and the ureter, which was subsequently dissected clean for four inches, was normal. It was clear that the disease, being limited to half the kidney, might be removed and the upper healthy portion of the organ left. The renal vessels were then grasped by the fingers of an assistant, and two incisions made; one from before backward and upward, the other from behind forward and upward into the kidney well beyond the disease. The incisions met in the center of the kidney and enclosed a wedge of renal substance, above the disease, between them. The severed surfaces of the kidney were healthy. At the inner part of these incisions a small portion of the pelvis was removed with the lower end of the kidney. Through this opening a large probe explored and demonstrated the patency of the ureter. A branch of the renal artery and a large tributary of the renal vein were ligatured. A continuous Lembert stitch was then made to unite the cut edges of the pelvis, and was continued on into the kidney substance so that, when the kidney wound was stitched up, a portion of this suture was buried. The edges of the kidney incision were then brought together by stout catgut interrupted sutures introduced with a large curved intestinal needle at intervals of about half an inch. On relaxing the pressure upon the renal vessels the wound remained dry. Some thickened masses of tissue, the result of a chronic sclerosing perinephritis, were carefully dissected out, the most tiresome dissection being carried out upon and around the vena cava. The kidney remnant was replaced, the incision in the parietes stitched up in tiers, and a drain of gauze left hanging from the posterior end of the wound.

OPERATIVE CURE OF CHRONIC BRIGHT'S DISEASE.

The proposal to treat chronic Bright's disease by operation was first made by EDEBOHLS *(Medical Record,* Dec. 21, 1901), after he had obtained favorable results in four out of six cases, in which he had performed nephropexy for the purpose of anchoring a movable kidney in the presence of well marked chronic Bright's disease. In five of these six cases nephropexy was undertaken without any idea of favorably influencing the chronic nephritis known to exist; the indication for operation being given solely by the existence, in an aggravated degree, of the usual symptoms due to mobility of the kidney or kidneys. The effects of nephropexy upon the coexisting chronic Bright's disease, whatever they might prove to be, were simply hazarded in view of the necessity of relieving the patient of a number of intolerable symptoms. Encouraged by the permanence of the cures of chronic nephritis in earlier cases, he has during recent years performed nephropexy by preference upon patients suffering from chronic Bright's disease. This may account for the fact that among the 191 patients upon whom he has performed nephropexy, there were no less than sixteen sufferers from chronic nephritis. The results proved gratifying beyond all expectation. As none of the patients after operation received any further treatment for their chronic Bright's disease, the conclusion became inevitable that the cures and improvement obtained with practical uniformity must be ascribed to the operation itself.

In Edebohls's opinion, a practical division or classification of chronic Bright's disease is to designate as interstitial nephritis those

cases in which the gross evidences of inflammation of the connective tissues of the kidney predominate; as parenchymatous nephritis those in which the involvement of the secretory apparatus forms the salient feature; and as diffuse nephritis those inflammations of the kidney characterized by implication, in fairly equal degree, of both the parenchyma and the connective tissue of the organ.

Of the eighteen patients with chronic Bright's disease operated upon, five had right chronic interstitial nephritis; four had left chronic interstitial nephritis; four had right and left chronic interstitial nephritis; two had right and left chronic parenchymatous nephritis, and three had right and left chronic diffuse nephritis.

In fourteen of the eighteen cases, both kidneys were operated upon—in twelve instances at one sitting, and twice at two sittings. In four patients operation was performed on one kidney only, in every instance the right.

Of the four patients whose right kidney alone was operated upon, two recovered completely and remained in lasting health. It is probable, therefore, that their left kidneys were at the time of operation in perfect health. A third patient disappeared from observation. The fourth patient had her left kidney removed by another surgeon within three years after Edebohls's operation on the right. The left kidney was probably diseased at the time of operation on the right.

The left kidney alone was affected by chronic Bright's disease in four cases, the right alone in four cases, and both kidneys in nine cases, while in one case the unilateral or bilateral nature of the disease remains undetermined. In other words, the chronic nephritis affected both organs in nine cases, and one kidney only in eight cases, one case remaining doubtful.

In six of the eight cases in which the disease is recorded as unilateral, the healthy condition of the other kidney was verified at operation.

The fact that chronic Bright's disease may be unilateral in one-half, or nearly one-half, of a series of eighteen cases may come as a matter of surprise. The fact, however, well explains the chronic course of many cases of Bright's disease, and the comparatively little disturbance of health the disease sometimes occasions. The healthy kidney simply performs the eliminative work of both kidneys, and the toxemic symptoms of uremia are not manifested.

The diagnosis of chronic Bright's disease in the eighteen cases was based upon the previous history of the patient, upon the chemical and microscopical examination of the urine, and lastly, upon the critical test of actual inspection and palpation of the kidney at the time of operation. This evidence was supplemented in two cases by microscopical examination of a small piece of kidney tissue removed at operation.

The evidences of chronic Bright's disease, as revealed by operation, clinched the diagnosis beyond peradventure in all the cases. They were, in each instance, so positive and pronounced as to leave no room for doubt.

Excision of the renal capsule proper is performed as follows: The patient is placed prone upon the table, with the author's kidney air-cushion underlying and supporting the abdomen. Both kidneys are thus rendered accessible to operation without the necessity of changing the patient's position. An incision is carried from the twelfth rib to the crest of the ilium along the outer margin of the erector spinæ, without opening the sheath of that muscle. The fibers of the latissimus dorsi muscle are bluntly separated in the direction of their course, without cutting. The iliohypogastric nerve is sought for and drawn to one side or other, out of the way of harm. Division of the transversalis fascia exposes the perirenal fat. This is divided over the convexity of the kidney until the capsule proper is reached. The fatty capsule is now bluntly separated everywhere from the capsule proper, the dissection advancing on either aspect and around both poles of the kidney until the pelvis of the kidney is reached. Now and then the fatty capsule may be found so thickened and adherent, as the result of chronic perinephritis, that the scissors or knife may be required to separate it from the capsule proper. The kidney with its capsule proper is next lifted from its fatty capsule bed, and if possible delivered through the wound. The capsule proper is divided on a director along the entire length of the convex external border of the kidney and clean around the extremity of either pole. Each half of the capsule proper is in turn stripped from the kidney and reflected toward the pelvis until the entire surface of the kidney lies

raw and denuded before the operator. In separating the capsule proper from the kidney, care must be exercised not to break or tear away parts of the kidney, which is often both very friable and very firmly connected with its capsule proper. The stripped-off capsule proper is next cut away entirely, close to its junction with the pelvis of the kidney, and removed. Delivery of the kidney makes this otherwise difficult work easy. If the kidney cannot be delivered, the capsule proper must be entirely peeled off the kidney by the fingers in the bottom of the wound, and excised as far as possible, any remaining portion being simply reflected backward around the root of the kidney, where it will curl up and stay. The kidney is dropped back into its fatty bed and the external incision is closed. Drainage, except when the parts are extremely edematous, is dispensed with. After both kidneys have been thus operated upon, the dressings are applied and the patient is put to bed.

There has thus far been no mortality in Edebohls's operations upon the kidneys of patients affected with chronic Bright's disease. All the patients recovered from the operation, and all but two are alive to-day. One of the two died after an operation for ruptured tubal pregnancy, performed by another surgeon, exactly one year after operation on her kidneys; the other succumbed to a hysterectomy, also performed by another surgeon, eight years after operation on her right kidney.

Of the eight patients observed from one year to over eight years after operation, the further progress of whose cases and whose final condition fully justify the title of this paper, all are cured of their former chronic Bright's disease, and seven of them (one of the cases died from accident) remain so cured, as a result of operation on their kidney or kidneys, none of them having received further treatment of any kind after operation. They are free from all symptoms referable to the kidneys, and their urine remains permanently free of albumin and casts.

That chronic Bright's disease is curable by operation is apparently demonstrated beyond any legitimate doubt by the results obtained in these eight cases. The significance of this demonstration or proof becomes apparent when we consider both the wide prevalence of the disease and its inevitable tendency to a fatal termination, delayed though that termination may be, under any and all forms of treatment hitherto known.

Edebohls, however, does not entertain any enthusiastic hopes or expectations that chronic Bright's disease will be found to yield to surgical treatment in all cases and in all stages of the disease. When the patient is practically moribund, sufficient time may not be left for the circulatory changes in the kidneys, initiated by the operation, to produce any good results. The first beneficial effects of operation, as indicated by the increased flow of urine, do not appear before the tenth day. The manifold complications of the advanced stages of chronic Bright's disease, many of them in themselves necessarily fatal, will also stand in the way of our saving lives, even if we succeed in curing or improving the chronic Bright's disease. A number of these complications will, in addition, prove almost prohibitive to undertaking any operation whatsoever.

The increased and adequately maintained blood-supply to the kidney established by Edebohls's operation leads, most probably, to gradual absorption of the interstitial or intertubular inflammatory products and exudates, thus freeing the tubules and glomeruli from external compression, constriction, and distortion, and permitting the reestablishment in them of a normal circulation. The result of this improved circulation in and between the tubules and glomeruli is the regenerative production of new epithelium capable of carrying on the secretory function.

Renal decapsulation is performed with the object of creating new and liberal supplies of arterial blood to the diseased kidney. Both the denuded kidney and its fatty capsule are most liberally supplied with blood-vessels; both are brought together by the operation over the whole extent of the surface of the kidney; and the necessary result must be the formation, on the most extensive scale possible, of new vascular connections between the kidney and the fatty capsule embracing it. The fibrous capsule proper forms an almost impenetrable barrier to the passage of blood-vessels between the kidney and its fatty capsule.

Cirrhosis of the liver, chronic interstitial hepatitis, one of the most frequent complications of chronic Bright's disease, has within the past three years come within the do-

main of surgery. The most modern development of the operation for cirrhosis of the liver embraces, as essential features, both the establishment of anastomosis between the omentum and the anterior abdominal wall, and the creation of wide-spread adhesions between the upper surface of the liver and the diaphragm. Both operations are performed with the object in view of relieving the portal circulation, and of thus removing one of the symptoms of the disease, the ascites. Edebohls believes that the future will show that whereas the anastomosis between the vessels of the omentum and abdominal wall will relieve the ascites, the establishment of broad adhesions and extensive vascular anastomosis between the upper surface of the liver and the diaphragm will accomplish more than this. It will probably lead to an amelioration, and possibly, in some instances, to a cure, of the cirrhosis itself, by establishing an increased arterial hyperemization of the liver on the same principles which underlie the operation for the cure of chronic Bright's disease. There is no good reason, at the present day, why a sufferer from both chronic Bright's disease and cirrhosis of the liver should not have the chance of life afforded by operation for both conditions.

Chronic Bright's disease is curable by operation, and the present state of our knowledge does not warrant us in accurately defining the limits beyond which operation can no longer avail. Edebohls is prepared to operate upon any patient with chronic Bright's disease who has no incurable complication, or one absolutely forbidding the administration of an anesthetic, and whose probable expectation of life, without operation, is not less than a month.

TREATMENT OF ANTHRAX BY THE INTRAVENOUS INJECTION OF SOLUBLE SILVER (COLLARGOLUM).

FISCHER *(Münchener Med. Woch.,* No. 47, 1901) states that the use of silver in septic diseases has been generally confined to the local application of Credé's ointment. For the past two years Fischer has made use of intravenous injections in those cases in which the ointment either could not be applied or when its action was not sufficiently energetic. The following case of anthrax was the first one to be treated by this method:

On May 19, 1901, A. M., aged thirty-five years, was admitted to the hospital suffering from anthrax, and with the following history: Fifteen days previous to his admission he had handled a cow that was suffering from anthrax. Being aware of the danger of infection he covered his hands with grease, and afterward disinfected them with permanganate solution. Five days later he noticed a burning sensation in the right cheek, and there slowly developed a spot about the size of a pea markedly red in color. The appetite became impaired, and there was some difficulty in swallowing, and also mental depression. Three days before his admission to the hospital the right cheek was red, swollen, and tense, and there was a vesicle about the size of a quarter over the malar bone. The next day he had a pronounced chill, there was great difficulty in swallowing, and marked pain extending from the right side of the head down to the shoulder and back. On the day before his admission he consulted a physician, who applied hot fomentations, but soon afterward made a miscroscopic examination, which proved the case to be one of anthrax. His examination on admission showed a grayish-black pustule on the right cheek about one and one-half centimeters in diameter and somewhat hollowed out. All the surrounding tissues were infiltrated and the swelling extended as far down as the neck. The cervical and clavicular glands were enlarged and tender. The patient was very weak, easily confused, and complaining greatly of headache and of burning pain in the face. He shivered constantly, had no appetite, was pale and emaciated, temperature 38.8° C., and pulse 90, but soft.

The cardiac action being good, an injection of five cubic centimeters of a one-per-cent solution of colloidal silver was made directly into the left cephalic vein. By midnight the temperature reached 39.6° C., and the pulse 92. Soon afterward he had a severe chill, and after that he rested easier. The next morning the patient had a profuse sweat; he then slept, and later was able to take some liquid nourishment. Examination at this time showed that the infiltration had extended and involved the side of the neck, the posterior portion of the scalp, and anteriorly to the median line of the forehead. The eyelids were so swollen that the

eyes could not be opened. The appearance of the pustule had scarcely changed at all, the surrounding tissue was bluish-red in color and very tense. Toward evening the patient became worse, and a second injection of silver was given. On the following day the patient was much improved, the inflammation had not extended, and the eyelids had decreased in size. Another injection similar to the first two was given, and the patient from this time on steadily improved, and one month later was pronounced cured.

The microscopical and bacteriological examinations of this case proved it to be one of anthrax. The prognosis on admission to the hospital was very unfavorable. As the result of the injections of silver solution there was an immediate improvement in the physical symptoms, a lessening of the infection, and the disease ran a shorter course than usual. There were no unfavorable sequelæ of the intravenous injections; the chill which followed the first was undoubtedly due to the disease itself. Great care was taken not to inject any undissolved nor precipitated silver. Credé has stated that a chill may as a general rule follow the injection, but it should not be considered as a specific reaction of the solution.

VENA CAVA INJURIES IN NEPHRECTOMY.

There are eight accidental injuries of the vena cava reported in literature. Twice the same vessel has been ligated as an operation of choice without causing the death of the patient.

LINDNER *(Münchener Medicinische Wochenschrift;* quoted in *Interstate Medical Journal,* January, 1902) had the accident occur when he was operating on a man of sixty-two to remove the kidney in an effort to cure a large movable tumor affecting the right organ. The mass was being pulled through the wound when there shot up a tremendous stream of dark blood, indicating that the vena cava had been torn. The two ends were caught and ligatured, but the patient died in a few hours, air having entered the heart. Part of the vena cava had been completely grown around by the tumor, so that when removing the same the involved section of the vessel was torn out.

Reviews.

DISEASES OF THE INTESTINES. Their Special Pathology, Diagnosis, and Treatment. By John C. Hemmeter, M.D., Ph.D. In Two Volumes; Volume II. Freely Illustrated.
Philadelphia: P. Blakiston's Son & Co., 1902.

Within the last few months we have had the pleasure of reviewing in the THERAPEUTIC GAZETTE the second edition of Dr. Hemmeter's well known book upon diseases of the stomach, and more recently Volume I of this exhaustive contribution to the literature of diseases of the intestines. In writing of his contribution to gastric diseases we emphasized the fact that it differed from most monographs in that it revealed not only a close acquaintance with clinical detail, but also a thorough grasp of laboratory technique and of the various experimental investigations and anatomical researches which have been made within recent years as to the part of the body which he was considering. The same breadth of view characterized Volume I of Dr. Hemmeter's book upon the intestines, and is well shown in Volume II, which is now before us. This volume deals with pretty much all of the local diseases which affect the intestinal canal, such as appendicitis, tuberculosis, syphilis, actinomycosis, occlusions, rupture, enterorrhagia, intestinal surgery, abnormalities of form and position, thrombosis and embolism, the neuroses, intestinal parasites and diseases of the rectum. And in addition it is copiously illustrated with many original drawings, and with a considerable number of plates which have been taken from Deaver's work upon Anatomy.

The opening pages of Volume II are devoted to a consideration of appendicitis in its simple catarrhal forms. We cannot help thinking that many surgeons will strongly object to so much space being devoted to what the author calls "simple catarrhal appendicitis." For whatever some of us may believe in regard to the existence of such a condition, a good many of our surgical friends desire to emphasize the fact that in their opinion simple catarrhal appendicitis is never so mild as to permit of medicinal treatment. Notwithstanding this fact, this chapter is of great interest, because it emphasizes the statistics which have been collected, which prove that many cases of simple appendicitis undoubtedly recover without operative interference.

Naturally, because of the importance of the subject of appendicitis in general, a large amount of space is devoted to its consideration—some seventy pages being given to it.

In regard to the prognosis of appendicitis in its more severe forms, it is interesting to note that Dr. Hemmeter states that it is favorable as regards life, although if the patient is advanced in years it should be made cautiously, and Hemmeter quotes with approval Osler's statement that recovery is the rule, and that out of 264 cases at St. Thomas's Hospital, 190 recovered. Out of these 264 cases at St. Thomas's Hospital, it is incredible that 190 recovered if they were cases of real appendicitis, since out of 264 attacks of appendicular inflammation, it is incredible that all but 74 should have been so mild as to recover without any operative interference. Of course, these statements are made in that portion of the chapter which does not deal with suppurative appendicitis.

In the discussion on the prognosis of suppurative perityphlitis, Hemmeter states that very violent cases, accompanied by high fever, often result favorably if the suppuration breaks through into the intestine or other organs; while in other cases which take a mild course soon after the beginning of the disease, the symptoms of a general septic or fibrinosuppurative peritonitis may suddenly appear. Of these two, the first always ends fatally. The second may be cured in exceptional cases. In making this statement we regret that the author has not quoted as fully from current authorities as he has in other portions of the work. Usually these quotations, as we have before pointed out, are very constantly made. But in this particular instance the statement rests upon the personal opinion of the author. We are surprised to learn that he thinks that the prognosis in the case of a general septic suppurative perityphlitis is more favorable than that which is associated with rupture into the intestines; since in one instance drainage takes place and in the other it does not.

There can be no doubt that this second volume of Dr. Hemmeter's work is a worthy successor to the first volume, and that it will do much to increase his reputation as a skilled investigator of diseases of the alimentary tract.

Ophthalmic Myology. A Systematic Treatise on the Ocular Muscles. By G. C. Savage, M.D., Professor of Ophthalmology in the Medical Department of Vanderbilt University. Illustrated with Engravings and Six Plates. Nashville, Tenn.: Published by the Author, 1902.

The author has set forth in the 567 pages of this book, in an argumentative style and with considerable force, his own conceptions and theories of the causes, symptoms, and treatment of anomalies of the ocular muscles. The description of the functional affections consumes 500, and of the organic diseases 28 pages, respectively. The inference would seem justified that he considered his mission to be the elucidation of the former in accordance with his original and novel views and conclusions, or that the latter was of secondary importance only and already sufficiently well understood.

The honest and fair-minded critic has rather a difficult task in reviewing this book. Imbued with the strongest desire to commend all that is praiseworthy, and to deal gently with those subjects on which his opinions differ from those of the author, the reviewer endeavors to eliminate traditions and prejudices and to convey the impression to the reader that while the book is worthy of careful study, he must withhold his indorsement of some of the principal statements. Moreover, the limits of an ordinary review preclude extended quotations that would help to give an idea of the work, and also the reviewer's own views in answer to the opinions expressed in these quotations.

The reviewer is impressed with: (1) The originality of the author. The treatment of the subject is essentially different both in classification and in method from that adopted in text-books and in other monographs. The emphatic recommendation of "rhythmic exercise," practiced before and presumably since the publication of "New Truths in Ophthalmology," as a means of strengthening weak muscles, deferring oncoming presbyopia, and in stimulating the sphincter of the pupil; the detailed description of cyclophoria, including its diagnostic tests and its treatment by prisms or tenotomy of the obliques, are illustrations of the author's unconventional rules of practice. Yet one can see that he has been a close student of the teachings of Stevens and Ranney, and his doctrines have been influenced by their writings. (2) The theoretical rather than the practical char-

acter of the work can now be considered. For example, among the causes ascribed for the imbalance of the external muscles, not a little stress is laid upon the defective insertion of the tendons into the sclera, but no anatomical studies are mentioned upon which to base this claim. Again, if a practitioner should consult the book for guidance as to the method of proceeding in a certain case, he is forced to read several pages before he can discover how Dr. Savage would treat it, and withal encounter the description of so many possible complications that he might be discouraged from a second reference. Even the ophthalmic specialist, fairly well versed in muscular problems and conscientious in his effort to add to his knowledge, would become interested in the speculations of the author, but not convinced that he had really acquired further insight into the subject, or that he could afford to discard the theories that seemed logical and satisfactory, and to substitute those embodied in Savage's book. (3) The earnestness and argumentative ability displayed by the author in forcing the truth of his own convictions upon the reader. His sincerity and, incidentally, his intuition that his views would not be universally accepted by ophthalmic surgeons are attested in the statement in the preface: "He would not promulgate nor perpetuate errors if he knew it; therefore, the reviewer who, in his own way, points out what he may find to be erroneous is as much his friend as the one who gives emphasis to what he finds to be true."

The book is well printed and bound and is creditably free from typographical errors.

H. F. H.

THE PRACTICAL MEDICINE SERIES OF YEAR-BOOKS. Under the General Editorial Charge of Gustavus P. Head, M.D. Volume III: The Eye, Ear, Nose, and Throat. Edited by Casey A. Wood, C.M., M.D., Albert H. Andrews, M.D., and T. Mellville-Hardie, A.M., M.D.

Chicago: The Year-Book Publishers, December, 1901.

This volume is one of a series of ten, published, at intervals of a month, with the aim of comprising the most important papers that have been written on all the branches of medicine and surgery during the preceding eighteen months. The volume contains 346 closely printed pages, is convenient in size, and easy of reference by reason of a complete index. The illustrative plates are well executed, but the figures in the text are badly reproduced, possibly owing to the inferior grade of paper. We believe it is unwise economy to reduce the price of the books at the expense of their appearance and usefulness. The contained material is valuable and should be presented in a style consistent with its value. The editors are men prominent in their special lines of work and experienced in forming critical judgments. They have collected for the benefit of men who have no time or opportunity to study the original papers the most practical and the newest of the great mass of medical literature, and have presented it in an attractive way in abstract with here and there editorial comment.

The demand for year-books seems to be increasing. The medical public is now well supplied and has no reason to complain of a lack of labor- and time-saving devices in keeping abreast of the rapid advance in the art of medicine. The objections that have been urged against quiz compends as compared to text-books might apply to year-books, namely, that they encourage a spirit of laziness and of dependence upon others' judgments as to the worth of original articles and upon their discrimination as to their relative importance, but on the other hand, few busy practitioners have the time for systematic reading or the advantages of reference libraries.

H. F. H.

Correspondence.

LONDON LETTER.

BY RAYMOND CRAWFURD, M.A., M.D. OXON., F.R.C.P. LOND.

The Epidemiological Society had the benefit of a paper from Dr. Millard, medical officer of health for Leicester, combating the traditional belief in the infectivity of desquamation in scarlet fever. It was not surprising to hear unorthodox doctrine propagated from Leicester, the home of medical non-conformity, but very much more so to find that most of those qualified by hospital experience to form an opinion on the matter were in substantial agreement with him. Dr. Millard had addressed a circular inquiry to twenty-five medical superintendents of fever hospitals, with the result that no less than sixteen had expressed decided disbelief in

the infectivity, while nine accepted the doctrine with some reservation. Every one will agree that the positive bacteriological evidence in favor of it is non-existent, and the clinical arguments untrustworthy, but Dr. Millard goes further and maintains that the direct evidence against it is strong. In the first place the streptococcus conglomeratus, which is generally regarded as the specific microbe of scarlet fever, though present in the nasopharyngeal mucus and urine, had never been demonstrated in the shed cuticle, and though this must be diffused far and wide, the "striking distance" of scarlet fever is notoriously short. In this particular there is a marked contrast between smallpox and scarlet fever hospitals in their influence on the area around them. No true analogy exists between the pustulation of smallpox and the desquamation of scarlet fever: the former is evidence of the presence of bacteria, the latter evidence only of the action of bacterial toxins. Dr. Millard gave his experience of several thousand cases, that when the average period of detention did not exceed one month, the percentage of return cases following the discharge of patients still desquamating, though otherwise healthy, was certainly not greater than among others in whom it had ceased.

Each year the report of the pathologist of the London County Council—Dr. Mott—brings to light the results of laborious investigations of the workers in the County Council Asylums. The last report is no exception, though it necessarily confines itself to a bare outline of the work which will be published in full at some future period. One of the chief pieces of work has been the investigation into the etiology and pathology of idiocy and imbecility by Dr. Tredgold. His researches into 150 cases show that in the various neuropathic conditions of hysteria, epilepsy, insanity, and idiocy, the causes are the same in kind and differ only in degree. The observations show that ancestral defects are by far the most important. He has shown that a few cases of idiocy are the result of accidental circumstances, but that the large majority are due to innate defects brought about by morbid states in the ancestors, and resulting in incomplete development of the nervous system. Among these defects insanity, consumption, and alcoholism take pride of place. Out of the whole number of cases insanity was present in the ancestors in seventy per cent, consumption in twenty-eight per cent, and alcoholism in thirty-nine per cent. In fifteen per cent both these factors were present in addition to the insanity. Among the accidental conditions traced were difficult labor, abnormal condition of the mother during pregnancy, premature birth, and syphilis, but ancestral defects were usually present as well, so that these could only be regarded as contributory causes. Incidentally the observations confirmed the syphilitic origin of general paralysis, as it was found that of those imbeciles in whom syphilis was present, a large proportion eventually developed general paralysis in addition to the imbecility. Dr. Tredgold had the opportunity of making a microscopic examination of the nervous system in ten of these 150 cases. He found that the condition usually present is an arrest of development of certain layers of cells and of the association systems of fibers, other pathological conditions being frequently superadded.

Another important research has been that of Dr. Bolton on the morbid anatomy of dementia. This investigation is both microscopic and macroscopic in character. In the former the pyramidal layer of the cortex cerebri is decreased directly with the amount of amentia or dementia existing in the patient, whilst the other layers are of the normal depth. In the latter from the macroscopic standpoint, nearly 200 cases showing varying grades of dementia have been reported on clinically and pathologically, and it has been found that the extent of morbid change, as regards the pia-arachnoid, intracranial fluid, etc., which is found post mortem, varies directly with the degree of dementia existing at death and bears no relation to the chronicity of the case.

Dr. Mott's own work has been chiefly devoted to strengthening the case he has already put forward in favor of the essential unity of tabes and general paralysis. From the clinical standpoint he has succeeded in collecting cases of (1) tabes without mental symptoms; (2) tabes with mental crises; (3) tabes with pronounced mental symptoms, chiefly hallucinatory and delusional (paroxysmal crises), accompanied by progressive dementia, usually slight; (4) tabes followed by or associated with progressive dementia indistinguishable from ordinary general paralysis. The microscopical investigation of a large number of the peripheral and central nervous systems of fatal cases

has served to support his contention that the actual morbid process is similar in all. Clinical observation shows that the degeneration is dependent upon the syphilitic poison, but the incidence of the disease in different portions of the nervous system is probably determined by many contributory factors, of which heredity, occupation, temperament, and social surroundings are the more important.

Professor Martin, of Melbourne, recorded at a recent meeting of the Physiological Society of Melbourne some investigations on the causation of sudden death during the administration of chloroform. The experiments were performed on a large number of dogs, they being specially prone to sudden death in the induction of chloroform anesthesia. By means of a special apparatus the percentages of chloroform in the air administered were carefully recorded. Particular attention was devoted to recording changes in the circulation during the early period of chloroform administration, in animals which had not previously received chloroform. For this end the preliminary operative measures were performed under morphine or curari and morphine, or else under ether, allowing eight or twelve hours' interval before administering the chloroform.

In the first series of experiments the effects of chloroform were observed on the heart isolated from the central nervous system—*i. e.*, from vagus, vasomotor, and respiratory influences by Hering's method. The blood-pressure began to fall coincidently with the commencement of administration. When the air administered contained .8 per cent chloroform vapor, blood-pressure fell to zero in 16 minutes 22 seconds; when it contained 1.2 per cent chloroform vapor, blood-pressure fell to zero in 9 minutes 45 seconds; and when it contained 2 per cent chloroform vapor, blood-pressure fell to zero in 1 minute 25 seconds. The effect on the isolated heart is remarkably rapid, as with the intact heart with .8 and 2 per cent death has never occurred in less than five to six and one to two hours respectively. In the isolated heart there was no abrupt variation in the rate or efficiency, such as occurs in an animal with an intact nervous system, but the fall of blood-pressure was gradual or steep according to the percentage of chloroform vapor in the air administered. From these experiments Martin concludes:

1. That chloroform has an immediate and progressively paralytic effect upon heart muscle. There is no preliminary period of stimulation. There is no abrupt change in the rate or efficiency of the isolated heart.

2. That heart muscle is very sensitive to the poisonous effect of chloroform.

3. That in the administration of chloroform by inhalation to the intact animal, the vapor tension of chloroform in the blood only slowly reaches that of the inspired air.

A further series of experiments was carried out on morphinized dogs. When air containing more than 2 per cent of chloroform vapor was administered, slowing of the heart ensued; when air containing 2.5 per cent was administered, the heart was frequently arrested suddenly and completely. The heart, however, quickly began to beat again. When air containing 3 per cent or upwards was administered, the heart was frequently arrested and recovery was not constant.

The slowing or cessation of the heart was due to stimuli passing down the vagus, because it never occurred in animals in which the vagi had been previously divided, and when occurring in animals with intact vagi, it immediately disappeared upon section of both of them.

In a sufficiently chloroformed animal fatal syncope can always be induced by excitation of one or both vagi by the interrupted current. Fatal inhibition of the heart from faradization of the vagi is apt to occur when the blood-pressure has been reduced to about 40 millimeters mercury pressure.

Another series of animals were prepared, as above described, under ether. In these intermissions and slowings occurred quite early. Struggling always came as the drops occurred in the pressure, the struggling always raising the pressure again. These temporary inhibitions always passed as anesthesia came on, and never approached fatal inhibition. In those experiments in which a rapid fall in blood-pressure was occasioned by pressing the anesthetic, inhibition frequently occurred when the blood-pressure fell to 40-50 millimeters.

Professor Martin draws the following conclusions of the effect of chloroform upon the cardioinhibitory mechanism:

1. Chloroform raises the excitability of the vagus mechanism, particularly in the early part of the administration.

2. The increased excitability of the vagus mechanism is due to the action of chloroform on the vagus roots, and the inhibitory action is more intense from being exercised upon a heart whose spontaneous excitability is diminished by the action of chloroform upon it.

3. Chloroform administered to morphinized dogs in air containing not more than 1.5 per cent of the vapor, after a period of mild excitation, slowly depresses vagus excitability. This may again be raised more or less readily according to the duration of the administration and the endurance of the vagi, by increasing the percentage of chloroform, or by asphyxia.

4. Section of the vagi or atropinization in dogs absolutely abolishes sudden heart arrest from chloroform. The heart under such conditions fails slowly with rapid pulse and diminishing contraction volume.

5. The danger of vagus inhibition of the heart lies chiefly in the earlier period of the administration, before the initial increased excitation of the vagus mechanism has been succeeded by diminution.

6. Vagus inhibition is, in dogs, the great factor in the causation of sudden death from chloroform.

His conclusions in respect to the cause of respiratory failure and the relations of respiration to circulation are: (1) Failure of respiration is mainly due to fall of blood-pressure. With a good blood-pressure, failure of respiration by inhalation of chloroform is practically impossible. (2) Restoration of failed respiration is dependent upon restoration of blood-pressure.

We welcome with no little satisfaction an *ex cathedra* pronouncement on the inefficacy of cacodylates as therapeutic agents, such as Professor Fraser has just given expression to before the Edinburgh Medico-Chirurgical Society. For the past twelve months they have been the panacea of the ignorant practitioner and his confiding public. Unhappily physicians of eminence—mainly in France—have been found eager to swell the pæan of their praise for employment in every disease in which heretofore we have given arsenic. Tuberculosis is said to have bowed its head before cacodylates; bronchitis has fled at its magic touch; and the nervous wilderness of neurasthenia and chorea has been transfigured into a park. Nor is it only the cacodylate "that goeth in at the mouth" that exerts this magic influence, but that which goes in also by the rectum and under the skin. And as is meet, so noble a remedy should be given in heroic doses. Being rich in arsenic and yet not toxic, it is claimed for them that they procure a superabundance of the benefits of arsenic with immunity to its drawbacks. Professor Fraser, however, urges that if cacodylic compounds are incapable of causing toxic effect when given in much larger doses than those of the familiar arsenical compounds, it is reasonable to presume that they will to a corresponding degree be pharmacologically inert and therapeutically inefficient. His results are already recorded in the columns of the GAZETTE.

PARIS LETTER.

By R. H. TURNER, M.D. (PARIS).

At a recent meeting of the Society of Therapeutics Professor Gautier spoke enthusiastically about the new drug, methylarsinate of soda or arrhenal. He had tried it in tuberculosis, asthma, emphysema, chorea, intermittent fever, and vomiting in pregnancy. It can be given by the mouth for months without causing any disastrous effects. The best way of giving it is to administer it five days, then wait over five days. In severe forms of intermittent fever and of morning sickness it is best to give it hypodermically. The use of arrhenal should be watched with care when the liver is out of order in patients subject to intestinal or pulmonary hemorrhage.

Dr. Tuffier has recently operated on a case of aneurism of the aorta, and has published a long article on the subject in the *Presse Médicale*. It was a case of sacculated aneurism in a woman forty years old showing no syphilitic taint. He found the tumor was about as large as the fist. He tied the pedicle, but neglected to remove the sac. There was a subsequent slough, and the patient died from sudden hemorrhage.

The fight against alcoholism is entering on a new phase in France. One of the most important manufacturers of absinthe, Mr. Cusenier, is to be prosecuted for publishing the following advertisement in a number of French papers: "As oxygen confers a special appetizing power on the liquids with which it is mixed, oxygenated absinthe Cusenier, green or white, is with reason

recommended by physicians and sought after by amateurs."

This advertisement is of course an indirect slur on the professional dignity of medical men in France, and the French Anti-alcoholic League will prosecute the company. It is hard to say what the result of this will be, as this company is undoubtedly very powerful.

Notes and Queries.

A METHOD BY WHICH DEPOSITION OF MOISTURE ON THE LARYNGEAL MIRROR MAY BE PREVENTED WITHOUT THE AID OF HEAT.

Downie describes this method in the *Lancet* of March 1, 1902. When about to make a laryngoscopic examination by means of reflected light, the laryngeal mirror is warmed before being passed into the mouth, with the object of preventing condensation of moisture from the breath on its reflecting surface. When gas or oil is used as the illuminant, the warming of the mirror by holding it over the flame is simple, very convenient, and eminently satisfactory for routine examination, and is quite devoid of risk, so long as the examiner is careful to test the temperature of the mirror before passing it into the buccal cavity.

But if the mirror so warmed be retained for some time in the pharynx, as is frequently necessary during delicate intra-laryngeal operations, it becomes cool, if not cold, and its surface becomes dulled by deposition of moisture upon it and the image is blurred. And this is apt to occur when the operator requires to have the part which is being operated upon most clearly in sight. Again, when electric light is used as the source of illumination, the mirror must be warmed by holding it before a fire, over a spirit-lamp, or by placing it in hot water. The first two methods are inconvenient and not always within reach, and the last is deleterious to the mirror. All laryngologists are painfully aware of the rapid destruction of mirrors regularly heated by immersion in hot water. To overcome this difficulty, several methods, such as smearing the mirror with glycerin, etc., have been tried, but all of them so interfered with the reflecting quality of the mirror that they proved useless in practice.

Lately, and somewhat by accident, the writer fell upon the following plan, and it has been so eminently successful that he calls the attention of laryngologists particularly to it. An ordinary laryngeal mirror is taken, and after polishing it with a soft cloth the surface of the mirror is rubbed or penciled over with "le crayon antibuée." This dulls the surface. The mirror is again wiped or polished with a soft cloth, and the surface will again be clear and bright. It may then be breathed upon without its brightness being affected. After being so prepared the mirror may be used for laryngoscopical examination, and it may be retained in contact with the palate or in any part of the buccal or pharyngeal cavities as long as may be desired, without the reflecting surface being affected in the slightest degree by the breath-borne moisture. The crayon causes no scratching of the glass, nor does its use interfere with the cleansing and sterilizing of the mirror. He does not employ this method to the exclusion of heat, as the latter is much too convenient to be lightly discarded, but this method of preserving a clear, bright, reflecting surface will be found of great service under the following circumstances: (1) In an examination to be made with electric light; (2) where a prolonged use of the mirror is necessary; (3) in examinations made away from home; and (4) in the examination of children whose timidity is so often increased by seeing the mirror held over the flame of the lamp before being used. Dentists may also find the "crayon" to be useful, and the eye-piece of a microscope may be kept perfectly clear and bright, even during a prolonged examination in warm weather. The crayon may be obtained in Glasgow from Messrs. W. B. Hilliard, 63 Renfield Street.

POTASSIUM PERMANGANATE.

The *Medical Record* quotes with approval the following words concerning permanganate: It can ignite glycerin or alcohol, and detonates when rubbed up with confection of rose. An unlucky apothecary attempted to dispense the following: Potassium permanganate and alcohol, of each 10 parts; distilled water, 15 parts.

Scarcely had the bottle been corked when an explosion took place, and the boiling liquid spurted into the face of the surprised pharmacist. He nearly lost the sight of one eye, and was disabled from work for more than a month.